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ANNALS

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OF  
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**STEPHEN SPAULDING**  
CLASS OF 1927  
UNIVERSITY OF MICHIGAN

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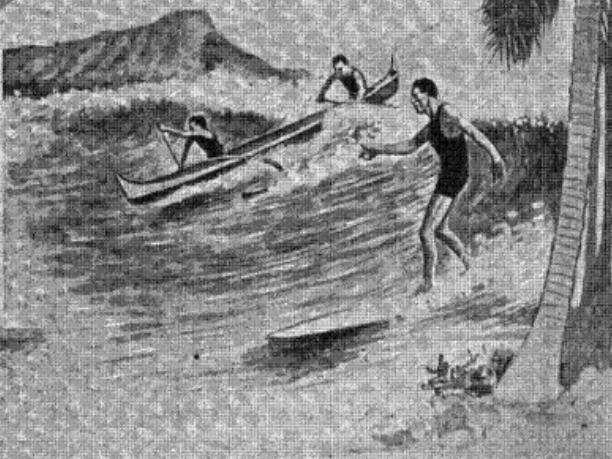


SEP 29 1923

# THE HAWAIIAN ANNUAL

THE REFERENCE  
BOOK OF HAWAII

Issued Regularly  
since 1875



1917

THOS. G. THRUM  
*Publisher*  
Honolulu T.H.

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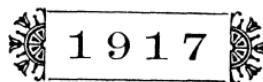
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# HAWAIIAN ALMANAC AND ANNUAL

FOR



1917

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## THE REFERENCE BOOK OF INFORMATION AND STATISTICS

Relating to the Territory of Hawaii, of Value to  
Merchants, Tourists and Others

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THOS. G. THRUM  
Compiler and Publisher

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Forty-Third Year of Publication

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HONOLULU  
1916

# Counting House 1917 Calendar 1917

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	SATURDAY
JAN.	—	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42
FEB.	14 15 16	17 18 19	20 21 22	23 24 25	26 27 28	29 30 31	—	—	—	—	—	—	—	—	—
MAR.	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42	43 44 45	46 47 48
APR.	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42	43 44 45
MAY	8 9 10	11 12 13	14 15 16	17 18 19	20 21 22	23 24 25	26 27 28	29 30 31	—	—	—	—	—	—	—
JUNE	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

**Thos. G. Thrum**  
 RESEARCHER AND PUBLISHER  
**The Hawaiian Annual**  
 HONOLULU, HAWAII

Thomas M. Spaulding  
1-26-1923

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## HAWAIIAN ANNUAL CALENDAR FOR 1917.

Second half of the nineteenth year and first half of the twentieth year since annexation of Hawaii with the United States.

Twenty-second year since the downfall of the Monarchy.

The 139th year since the discovery of the Hawaiian Islands by Captain Cook.

### Holidays Observed at the Hawaiian Islands.

*New Year .....	Jan. 1	*Birthday Hawn. Republic.	July 4
Lincoln's Birthday .....	Feb. 12	*American Anniversary ..	July 4
Chinese New Year .....	Feb. 21	Labor Day (1st Monday).	Sept. 3
*Washington's Birthday .....	Feb. 22	*Regatta Day (3d Saturday) ..	Sept. 15
*Decoration Day .....	May 30	Thanksgiving Day .....	Nov. 29
Kamehameha Day .....	June 11	*Christmas Day .....	Dec. 25

Those distinguished by the Asterisk have been established by law.

### Church Days.

Epiphany .....	Jan. 6	Ascension Day .....	May 17
Ash Wednesday .....	Feb. 21	Whit Sunday .....	May 27
Palm Sunday .....	Feb. 25	Trinity Sunday .....	June 3
First Sunday in Lent.....	April 1	Corpus Christi .....	June 7
Good Friday .....	April 6	Advent Sunday .....	Dec. 2
Easter Sunday .....	April 8	Christmas .....	Dec. 25

### Eclipses in 1917.

Courtesy of Prof. J. S. Donaghho, College of Hawaii.

In the year 1917 there will be seven eclipses, as follows:

I. A total eclipse of the moon January 7, visible in the Hawaiian Islands.

Moon enters shadow .....	7h. 20m. p.m.
Total eclipse begins .....	8h. 30m. p.m.
Total eclipse ends .....	9h. 59m. p.m.
Moon leaves shadow .....	11h. 9m. p.m.

II. A partial eclipse of the sun January 22, invisible in the Hawaiian Islands.

III. A partial eclipse of the sun, June 18, invisible in the Hawaiian Islands.

IV. A total eclipse of the moon, July 4, invisible in the Hawaiian Islands.

V. A partial eclipse of the sun, July 18, invisible in the Hawaiian Islands.

VI. An annular eclipse of the sun, December 13, invisible in the Hawaiian Islands.

VII. A total eclipse of the moon, December 27, visible in the Hawaiian Islands.

Moon enters shadow .....	9h. 35m. p.m.
Total eclipse begins .....	11h. 8m. p.m.
Total eclipse ends .....	11h. 25m. p.m.
Moon leaves shadow .....	0h. 57m. a.m., Dec. 28.

# FIRST QUARTER, 1917

JANUARY			FEBRUARY			MARCH		
D.	H. M.		D.	H. M.		D.	H. M.	
7	Full Moon	9.12.0 p.m.	6	Full Moon	4.58.4 p.m.	8	Full Moon	11.28.0 a.m.
16	Last Quar.	1.12.1 a.m.	14	Last Quar.	3.23.2 p.m.	16	Last Quar.	2.23.1 a.m.
22	New Moon	9.10.0 p.m.	21	New Moon	7.39.0 a.m.	22	New Moon	5.35.0 p.m.
29	First Quar.	2.31.5 p.m.	28	First Quar.	6.13.7 a.m.	30	First Quar.	0.06.4 a.m.
Day of Mo. . .	Sun Rises . . .	Sun Sets . . .	Day of Mo. . .	Sun Rises . . .	Sun Sets . . .	Day of Mo. . .	Sun Rises . . .	Sun Sets . . .
1 Mon..	6 38	25 30 3	1 Thurs.	6 37	35 50 8	1 Thurs.	6 20	16 4 7
2 Tues..	6 38	55 30 9	2 Fri... .	6 36	95 51 4	2 Fri... .	6 19	36 5 1
3 Wed..	6 38	75 31 6	3 Sat... .	6 36	55 52 0	3 Sat... .	6 18	56 5 5
4 Thurs..	6 39	05 32 3	4 SUN. .	6 36	15 52 6	4 SUN. .	6 17	76 5 9
5 Fri... .	6 39	25 32 9	5 Mon..	6 35	65 53 2	5 Mon..	6 16	96 6 3
6 Sat... .	6 39	45 33 6	6 Tues..	6 35	25 53 8	6 Tues..	6 16	06 6 7
7 SUN..	6 39	65 34 3	7 Wed..	6 34	75 54 4	7 Wed..	6 15	26 7 1
8 Mon..	6 39	85 34 9	8 Thurs..	6 34	25 54 9	8 Thurs..	6 14	46 7 4
9 Tues..	6 39	95 35 6	9 Fri... .	6 33	75 55 4	9 Fri... .	6 13	56 7 7
10 Wed..	6 40	15 36 3	10 Sat... .	6 33	25 56 0	10 Sat... .	6 12	66 8 1
11 Thurs..	6 40	25 37 0	11 SUN. .	6 32	65 56 5	11 SUN. .	6 11	76 8 4
12 Fri... .	6 40	35 37 7	12 Mon..	6 32	15 57 0	12 Mon..	6 10	96 8 5
13 Sat... .	6 40	45 38 4	13 Tues..	6 31	55 57 5	13 Tues..	6 10	06 9 1
14 SUN..	6 40	45 39 0	14 Wed..	6 30	95 58 0	14 Wed..	6 9	16 9 4
15 Mon..	6 40	45 39 7	15 Thurs..	6 30	25 58 5	15 Thurs..	6 8	26 9 7
16 Tues..	6 40	45 40 4	16 Fri... .	6 29	65 59 0	16 Fri... .	6	7 36 10 1
17 Wed..	6 40	45 41 1	17 Sat... .	6 29	05 59 5	17 Sat... .	6	6 46 10 4
18 Thurs..	6 40	35 41 7	18 SUN..	6 28	36 0 0	18 SUN..	6	5 46 10 7
19 Fri... .	6 40	35 42 4	19 Mon..	6 27	76 0 4	19 Mon..	6	4 56 11 0
20 Sat... .	6 40	25 43 1	20 Tues..	6 27	06 0 9	20 Tues..	6	3 66 11 3
21 SUN..	6 40	15 43 7	21 Wed..	6 26	36 1 4	21 Wed..	6	2 66 11 6
22 Mon..	6 39	95 44 4	22 Thurs..	6 25	66 1 9	22 Thurs..	6	1 76 11 9
23 Tues..	6 39	75 45 1	23 Fri... .	6 24	96 2 3	23 Fri... .	6	0 86 12 3
24 Wed..	6 39	55 45 7	24 Sat... .	6 24	16 2 7	24 Sat... .	5	59 96 12 6
25 Thurs..	6 39	35 46 4	25 SUN..	6 23	46 3 1	25 SUN..	5	59 06 12 9
26 Fri... .	6 39	15 47 1	26 Mon..	6 22	66 3 5	26 Mon..	5	58 16 13 2
27 Sat... .	6 38	95 47 7	27 Tues..	6 21	76 3 8	27 Tues..	5	57 26 13 5
28 SUN..	6 38	75 48 3	28 Wed..	6 20	96 4 3	28 Wed..	5	56 26 13 8
29 Mon..	6 38	45 48 9				29 Thurs..	5	55 36 14 1
30 Tues..	6 38	05 49 5				30 Fri... .	5	54 46 14 4
31 Wed..	6 37	75 50 2				31 Sat... .	5	53 56 14 7

VOLCANO OF KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.

Circumference, 41,500 feet, or 7.85 miles.

Extreme width, 10,300 feet, or 1.95 miles.

Extreme length, 15,500 feet, or 2.93 miles.

Elevation, Volcano House, 4,000 feet.

## SECOND QUARTER, 1917

### APRIL

D. H. M.  
 7 Full Moon 3.18.8 a.m.  
 14 Last Quar. 9.42.0 p.m.  
 21 New Moon 3.31.3 a.m.  
 28 First Quar. 6.52.0 a.m.

Day of Mo...	Sun Rises.....	Sun Sets.....	H. M.	H. M.
Day of Wk...				
1	SUN..	5 52	66	15 0
2	Mon..	5 51	76	15 4
3	Tues..	5 50	86	15 7
4	Wed..	5 49	96	16 0
5	Thurs..	5 49	06	16 3
6	Fri...	5 48	16	16 6
7	Sat...	5 47	36	16 9
8	SUN..	5 46	46	17 3
9	Mon..	5 45	56	17 6
10	Tues..	5 44	66	17 9
11	Wed..	5 43	86	18 2
12	Thurs..	5 43	06	18 5
13	Fri...	5 42	26	18 8
14	Sat...	5 41	36	19 1
15	SUN..	5 40	56	19 4
16	Mon..	5 39	76	19 8
17	Tues..	5 38	96	20 1
18	Wed..	5 38	16	20 5
19	Thurs..	5 37	36	20 8
20	Fri...	5 36	46	21 2
21	Sat...	5 35	66	21 6
22	SUN..	5 34	96	21 9
23	Mon..	5 34	16	22 3
24	Tues..	5 33	46	22 7
25	Wed..	5 32	76	23 0
26	Thurs..	5 32	06	23 4
27	Fri...	5 31	36	23 8
28	Sat...	5 30	66	24 2
29	SUN..	5 30	06	24 5
30	Mon..	5 29	36	24 9

### MAY

D. H. M.  
 6 Full Moon 4.13.3 p.m.  
 13 Last Quar. 3.17.9 p.m.  
 20 New Moon 2.16.8 p.m.  
 28 First Quar. 1.03.5 p.m.

Day of Mo...	Sun Rises.....	Sun Sets.....	H. M.	H. M.
Day of Wk...				
1	Tues..	5 28	76	25 3
2	Wed..	5 28	16	25 7
3	Thurs..	5 27	56	26 1
4	Fri...	5 26	86	26 5
5	Sat...	5 26	36	26 9
6	SUN..	5 25	76	27 3
7	Mon..	5 25	26	27 7
8	Tues..	5 24	66	28 1
9	Wed..	5 24	16	28 5
10	Thurs..	5 23	76	29 0
11	Fri...	5 23	26	29 4
12	Sat...	5 22	86	29 8
13	SUN..	5 22	46	30 3
14	Mon..	5 21	96	30 7
15	Tues..	5 21	56	31 1
16	Wed..	5 21	16	31 5
17	Thurs..	5 20	86	31 9
18	Fri...	5 20	46	32 4
19	Sat...	5 20	16	32 8
20	SUN..	5 19	86	33 2
21	Mon..	5 19	56	33 6
22	Tues..	5 19	26	34 1
23	Wed..	5 18	96	34 5
24	Thurs..	5 18	66	35 0
25	Fri...	5 18	36	35 4
26	Sat...	5 18	16	35 9
27	SUN..	5 17	96	36 2
28	Mon..	5 17	76	36 7
29	Tues..	5 17	56	37 1
30	Wed..	5 17	46	37 5
31	Thurs..	5 17	36	37 9

### JUNE

D. H. M.  
 5 Full Moon 2.36.7 a.m.  
 11 Last Quar. 8.08.5 p.m.  
 19 New Moon 2.32.2 a.m.  
 27 First Quar. 5.38.4 a.m.

Day of Mo...	Sun Rises.....	Sun Sets.....	H. M.	H. M.
Day of Wk...				
1	Fri...	5 17	26	38 3
2	Sat...	5 17	16	38 7
3	SUN..	5 17	16	39 1
4	Mon..	5 17	06	39 4
5	Tues..	5 17	06	39 8
6	Wed..	5 16	96	40 2
7	Thurs..	5 16	96	40 6
8	Fri...	5 17	06	40 9
9	Sat...	5 17	06	41 3
10	SUN..	5 17	06	41 6
11	Mon..	5 17	16	42 0
12	Tues..	5 17	26	42 3
13	Wed..	5 17	36	42 6
14	Thurs..	5 17	46	42 8
15	Fri...	5 17	66	43 1
16	Sat...	5 17	86	43 4
17	SUN..	5 17	96	43 7
18	Mon..	5 18	16	43 9
19	Tues..	5 18	36	44 2
20	Wed..	5 18	46	44 4
21	Thurs..	5 18	66	44 6
22	Fri...	5 18	86	44 8
23	Sat...	5 19	16	45 0
24	SUN..	5 19	36	45 1
25	Mon..	5 19	66	45 2
26	Tues..	5 19	96	45 4
27	Wed..	5 20	26	45 5
28	Thurs..	5 20	56	45 6
29	Fri...	5 20	86	45 1
30	Sat...	5 21	16	45 8

### MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.

Circumference, 50,000 feet, or 9.47 miles.

Length, 19,500 feet, or 3.7 miles.

Width, 9,20 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

# THIRD QUARTER, 1917

JULY				AUGUST				SEPTEMBER			
D.	H. M.			D.	H. M.			D.	H. M.		
4 Full Moon	11.10	5 a.m.		2 Full Moon	6.40	9 p.m.		1 Full Moon	1.58	5 a.m.	
11 Last Quar.	1.41	.9 a.m.		9 Last Quar.	8.26	4 a.m.		7 Last Quar.	8.35	2 p.m.	
18 New Moon	4.30	1 p.m.		17 New Moon	7.51	0 a.m.		15 New Moon	11.57	5 p.m.	
26 First Quar.	8.10	4 p.m.		25 First Quar.	8.38	2 a.m.		23 First Quar.	7.11	4 p.m.	
								30 Full Moon	10.01	1 a.m.	
Sun Rises . . .	Sun Sets . . .	Sun Rises . . .	Sun Sets . . .	Sun Rises . . .	Sun Sets . . .	Sun Rises . . .	Sun Sets . . .	Sun Rises . . .	Sun Sets . . .	Sun Rises . . .	Sun Sets . . .
Day of Mo. . .	Day of Wk. . .	Day of Mo. . .	Day of Wk. . .	Day of Mo. . .	Day of Wk. . .	Day of Mo. . .	Day of Wk. . .	Day of Mo. . .	Day of Wk. . .	Day of Mo. . .	Day of Wk. . .
1 SUN.	5 21	56 45 9	1 Wed..	5 33	46 38 4	1 Sat..	5 43	56 15 5	1 SUN.	5 43	76 14 6
2 Mon..	5 21	86 45 9	2 Thurs	5 33	76 37 9	2 Mon..	5 44	06 13 7	3 Mon..	5 44	06 13 7
3 Tues.	5 22	16 45 9	3 Fri...	5 34	16 37 3	4 Tues.	5 44	26 12 8	4 Tues.	5 44	26 12 8
4 Wed..	5 22	56 45 9	4 Sat...	5 34	56 36 8	5 Wed..	5 44	56 11 9	5 Wed..	5 44	56 11 9
5 Thurs	5 22	86 45 8	5 SUN.	5 34	96 36 2	6 Thurs	5 44	86 11 0	6 Thurs	5 44	86 11 0
6 Fri...	5 23	26 45 8	6 Mon..	5 35	36 35 6	7 Fri...	5 45	16 10 0	7 Fri...	5 45	16 10 0
7 Sat...	5 23	66 45 8	7 Tues.	5 35	66 35 0	8 Sat...	5 45	36 9 1	8 Sat...	5 45	36 9 1
8 SUN.	5 23	96 45 7	8 Wed..	5 36	06 34 4	9 SUN.	5 45	66 8 1	9 SUN.	5 45	66 8 1
9 Mon..	5 24	36 45 6	9 Thurs	5 36	46 33 7	10 Mon..	5 45	86 7 1	10 Mon..	5 45	86 7 1
10 Tues.	5 24	66 45 5	10 Fri...	5 36	76 33 1	11 Tues.	5 46	16 6 2	11 Tues.	5 46	16 6 2
11 Wed..	5 25	06 45 4	11 Sat...	5 37	16 32 3	12 Wed..	5 46	46 5 2	12 Wed..	5 46	46 5 2
12 Thurs	5 25	46 45 3	12 SUN.	5 37	46 31 7	13 Thurs	5 46	66 4 2	13 Thurs	5 46	66 4 2
13 Fri...	5 25	86 45 1	13 Mon..	5 37	76 31 0	14 Fri...	5 46	86 3 3	14 Fri...	5 46	86 3 3
14 Sat...	5 26	26 44 9	14 Tues.	5 38	16 30 3	15 Sat...	5 47	16 2 3	15 Sat...	5 47	16 2 3
15 SUN.	5 26	66 44 7	15 Wed..	5 38	46 29 6	16 UN.	5 47	36 1 4	16 UN.	5 47	36 1 4
16 Mon..	5 27	06 44 5	16 Thurs	5 38	76 28 8	17 Mon..	5 47	66 0 4	17 Mon..	5 47	66 0 4
17 Tues.	5 27	46 44 3	17 Fri...	5 39	16 28 1	18 Tues.	5 47	85 59 5	18 Tues.	5 47	85 59 5
18 Wed..	5 27	86 44 0	18 Sat...	5 39	46 27 3	19 Wed..	5 48	15 58 5	19 Wed..	5 48	15 58 5
19 Thurs	5 28	26 43 7	19 SUN.	5 39	76 26 5	20 Thurs	5 48	35 57 6	20 Thurs	5 48	35 57 6
20 Fri...	5 28	66 43 4	20 Mon..	5 40	06 25 7	21 Fri...	5 48	65 56 6	21 Fri...	5 48	65 56 6
21 Sat...	5 29	06 43 1	21 Tues.	5 40	36 24 9	22 Sat...	5 48	85 55 7	22 Sat...	5 48	85 55 7
22 SUN.	5 29	46 42 8	22 Wed..	5 40	66 24 1	23 SUN.	5 49	15 54 7	23 SUN.	5 49	15 54 7
23 Mon..	5 29	86 42 4	23 Thurs	5 40	96 23 3	24 Mon..	5 49	35 53 8	24 Mon..	5 49	35 53 8
24 Tues.	5 30	26 42 1	24 Fri...	5 41	26 22 5	25 Tues.	5 49	65 52 8	25 Tues.	5 49	65 52 8
25 Wed..	5 30	66 41 7	25 Sat...	5 41	56 21 6	26 Wed..	5 49	95 51 9	26 Wed..	5 49	95 51 9
26 Thurs	5 31	06 41 3	26 SUN.	5 41	86 20 8	27 Thurs	5 50	25 50 9	27 Thurs	5 50	25 50 9
27 Fri...	5 31	46 40 8	27 Mon..	5 42	16 19 9	28 Fri...	5 50	55 50 0	28 Fri...	5 50	55 50 0
28 Sat...	5 31	86 40 4	28 Tues.	5 42	46 19 0	29 Sat...	5 50	85 49 1	29 Sat...	5 50	85 49 1
29 SUN.	5 32	26 39 9	29 Wed..	5 42	76 18 2	30 SUN.	5 51	15 48 1	30 SUN.	5 51	15 48 1
30 Mon..	5 32	66 39 4	30 Thurs	5 43	06 17 3						
31 Tues.	5 33	06 39 9	31 Fri...	5 43	26 16 4						

IAO VALLEY, ISLAND OF MAUI.

Length (from Wailuku), about 5 miles.

Width of Valley, 2 miles.

Depth, near head, 4,000 feet.

Elevation of Puu Kukui, above head of Valley, 5,700 feet.

Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

## FOURTH QUARTER, 1917.

OCTOBER				NOVEMBER				DECEMBER			
		H. M.			H. M.				H. M.		
Day of Mo... .	Day of Wk... .	Sun Rises.....	Sun Sets.....	Day of Mo... .	Day of Wk... .	Sun Rises.....	Sun Sets.....	Day of Mo... .	Day of Wk... .	Sun Rises.....	Sun Sets.....
D. 7 Last Quar.		11.44.3 a.m.		D. 6 Last Quar.		16.33.5 a.m.		D. 6 Last Quar.		3.43.8 a.m.	
15 New Moon		4.11.0 p.m.		14 New Moon		7.58.5 a.m.		13 New Moon		10.47.3 p.m.	
23 First Quar.		4. 7.7 a.m.		21 First Quar.		7.58.8 a.m.		20 First Quar.		7.37.3 p.m.	
29 Full Moon		7.49.2 p.m.		28 Full Moon		8.11.3 a.m.		27 Full Moon		11.21.6 p.m.	
1 Mon..	5 51 3	5 47 2		1 Thurs.	6 3 45	23 7		1 Sat...	6 21 7	5 17 3	
2 Tues.	5 51 6	5 46 3		2 Fri....	6 3 95	23 2		2 SUN.	6 22 35	17 4	
3 Wed..	5 51 9	5 45 4		3 Sat....	6 4 55	22 7		3 Mon..	6 23 05	17 6	
4 Thurs.	5 52 2	5 44 5		4 SUN.	6 5 05	22 2		4 Tues.	6 23 65	17 7	
5 Fri....	5 52 5	5 43 6		5 Mon..	6 5 55	21 8		5 Wed..	6 24 35	17 9	
6 Sat...	5 52 8	5 42 7		6 Tues.	6 6 15	21 3		6 Thurs	6 24 95	18 1	
7 SUN.	5 53 1	5 41 8		7 Wed..	6 6 65	20 9		7 Fri....	6 25 65	18 4	
8 Mon..	5 53 5	5 40 9		8 Thurs	6 7 25	20 5		8 Sat....	6 26 25	18 7	
9 Tnes.	5 53 8	5 40 0		9 Fri....	6 7 85	20 1		9 SUN.	6 26 85	19 0	
10 Wed..	5 54 2	5 39 2		10 Sat...	6 8 45	19 8		10 Mon ..	6 27 45	19 3	
11 Thurs	5 54 5	5 38 4		11 SUN.	6 9 05	19 4		11 Tues.	6 28 05	19 6	
12 Fri....	5 54 9	5 37 6		12 Mon..	6 9 65	19 1		12 Wed..	6 28 65	20 0	
13 Sat...	5 55 2	5 36 7		13 Tues.	6 10 25	18 8		13 Thurs	6 29 25	20 4	
14 SUN.	5 55 6	5 35 9		14 Wed..	6 10 85	18 5		14 Fri ...	6 29 85	20 7	
15 Mon..	5 55 9	5 35 1		15 Thurs	6 11 55	18 2		15 Sat...	6 30 45	21 1	
16 Tues.	5 56 3	5 34 3		16 Fri....	6 12 15	18 0		16 SUN.	6 30 95	21 5	
17 Wed..	5 56 7	5 33 6		17 Sat..	6 12 75	17 8		17 Mon..	6 31 55	21 9	
18 Thurs.	5 57 0	5 32 8		18 SUN.	6 13 35	17 5		18 Tues.	6 32 05	22 4	
19 Fri....	5 57 4	5 32 0		19 Mon..	6 13 95	17 3		19 Wed..	6 32 05	22 9	
20 Sat...	5 57 8	5 31 3		20 Tues.	6 14 55	17 2		20 Thurs	6 33 15	23 4	
21 SUN.	5 58 2	5 30 5		21 Wed..	6 15 15	17 1		21 Fri....	6 33 65	23 9	
22 Mon .	5 58 7	5 29 8		22 Thurs	6 15 85	17 1		22 Sat...	6 34 15	24 4	
23 Tues.	5 59 1	5 29 1		23 Fri....	6 16 55	17 0		23 SUN.	6 34 65	24 9	
24 Wed..	5 59 6	5 28 5		24 Sat...	6 17 15	17 0		24 Mon..	6 35 15	25 5	
25 Thurs	6 0 0	5 27 8		25 SUN.	6 17 75	17 0		25 Tues.	6 35 65	26 0	
26 Fri....	6 0 5	5 27 2		26 Mon..	6 18 45	17 0		26 Wed..	6 36 05	26 6	
27 Sat... .	6 1 0	5 26 6		27 Tues.	6 19 15	17 0		27 Thurs	6 36 45	27 1	
28 SUN.	6 1 5	5 26 0		28 Wed..	6 19 75	17 0		28 Fri....	6 36 85	27 7	
29 Mon..	6 2 0	5 25 4		29 Thurs	6 20 45	17 1		29 Sat...	6 37 15	28 3	
30 Tues.	6 2 4	5 24 8		30 Fri.	6 21 15	17 2		30 SUN.	6 37 45	28 9	
31 Wed..	6 2 9	5 24 3						31 Mon..	6 37 75	29 5	

### HALEAKALA, ISLAND OF MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.

Circumference, 105,600 feet, or 20 miles.

Extreme width, 2.37 miles.

Extreme length, 39,500 feet, or 7.48 miles.

Elevation to summit, 10,032 feet.

Elevation of principal cones in crater, 8,032 and 1,572 feet.

Elevation of cave in floor of crater, 7,380 feet.

## INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy .....	1 1/4	Pearl River Bar.....	6
Diamond Head .....	5	Barber's Point .....	15
Koko Head .....	12	Waianae Anchorage .....	26
Makapuu Point .....	16	Kaena Point, N. W. of Oahu....	36
Mokapu .....	27	Waialua Anchorage .....	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena.	58

## HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Mahukona, Hawaii.....	134
Kalaupapa, Leper Settlement..	52	Kawaihae, "	144
West Point of Lanai.....	50	Kealakekua, " (direct) .....	157
Lahaina, Maui.....	72	S. W. Pt. "	233
Kahului, "	90	Punaluu,	250
Hana, "	128	Hilo,	192
Maalaea, "	86	"	(windward) 206
Makena, "	96	"	(via Kawai-hae) 230

## HONOLULU TO

Nawiliwili, Kauai.....	98	Hanalei, Kauai .....	125
Koloa, "	102	Niihau .....	144
Waimea, "	120		

## LAHAINA, MAUI, TO

Kaluaaha, Molokai .....	17	Maalaea, Maui .....	12
Lanai .....	9	Makena, Maui .....	18

## KAWAIHAE, HAWAII, TO

Mahukona, Hawaii .....	10	Hilo, Hawaii .....	85
Waipio, Hawaii .....	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii .....	45	Kailua, Hawaii .....	34
Laupahoehoe, Hawaii .....	62	Kealakekua, Hawaii .....	44

## HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii .....	70
Keauhou, Kau, Hawaii.....	50	Kaalualu, Hawaii .....	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

## WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai .....	30	Maui and Kahoolawe.....	6
Molokai .....	7	Hawaii and Maui.....	26
Molokai and Lanai.....	8	Kauai and Oahu.....	63
Molokai and Maui.....		Niihau and Kauai.....	15

## OCEAN DISTANCES.

## HONOLULU TO

San Francisco .....	2100	Auckland .....	3810
San Diego .....	2260	Sydney .....	4410
Portland, Or. ....	2360	Hongkong .....	4920
Brito, Nicaragua .....	4200	Yokohama .....	3400
Panama .....	4720	Guam .....	3300
Tahiti .....	2440	Manila, via N. E. Cape.....	4890
Samoa .....	2290	Victoria, B. C.....	2460
Fiji .....	2700	Midway Islands .....	1200

## OVERLAND DISTANCES.

## ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

	Miles.		Miles.	Inter.
Bishop's corner (Waikiki).....	3.2	Punaluu .....	28.4	2.0
Waikiki Villa .....	3.6	Hauula .....	31.4	3.0
Diamond Head .....	5.9	Lale .....	34.4	3.0
Kaalaawai .....	6.0	Kahuku Mill .....	37.2	2.8
	Miles. Inter.	Kahuku Ranch .....	40.0	2.8
Thomas Square .....	1.0			
Pawaa corners .....	2.0	Moanalua .....	3.4	
Kamoilili .....	3.3	Kalauao .....	7.4	4.0
Kaimuki Hill Reservoir 5.0	1.7	Ewa Church .....	10.2	2.8
Waialae .....	6.2	Kipapa .....	13.6	3.4
Niu .....	8.8	Kaukonahua .....	20.0	6.4
Koko Head .....	11.8	Leilehua .....	20.0	
Makapuu .....	14.8	Waialua .....	28.0	8.0
Waimanalo .....	20.8	Waimea .....	32.4	4.4
Waimanalo, via Pali..	12.0	Kahuku Ranch .....	39.4	7.0
Nuuuanu Bridge .....	1.1			
Mausoleum .....	1.5	Ewa Church .....	10.2	
Electric Reservoir .....	2.7	Waipio (Brown's) .....	11.2	1.0
Luakaha .....	4.3	Hoaeae (Robinson's) .....	13.5	2.3
Nuuuanu Dam .....	5.0	Barber's Point, L. H. ....	21.5	8.0
Pali .....	6.6	Nanakuli .....	23.5	2.0
Kaneohe .....	11.9	Waianae Plantation .....	29.9	6.4
Waiahole .....	18.9	Kahanahaiki .....	36.9	7.0
Kualoa .....	21.9	Kaena Point .....	42.0	5.1
Kahana .....	26.4	Waialua to Kaena Pt...	12.0	

## ISLAND OF HAWAII.

SOUTH KOHALA.—WAIMEA COURT HOUSE, TO

	Miles.	Inter.	Miles.	Inter.
Hamakua boundary ...	4.5	..	Hilo, via Humuula Stn.	54.0
Kukuihaele Mill .....	11.0	6.5	Keamuku Sheep Stn.	14.0
Mana .....	7.7	..	Napuu .....	22.0
Hanaipoe .....	15.0	7.3	Keawewai .....	8.0
Keanakolu .....	24.0	9.0	Waika .....	11.0
Puakala .....	34.0	10.0	Kahuwa .....	13.0
Laumaia .....	36.5	2.5	Puuhue .....	17.0
Auwaiakekua .....	12.5	..	Kohala Court House...	22.0
Humuula Sheep Sation 29.0	16.5	..	Mahukona .....	22.0
via Laumaia ..	47.5	..	Puako .....	12.0

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.	Miles.	
Edge of Pololu Gulch.....	4.00	Union Mill .....	2.25
Niulii Mill .....	2.80	Union Mill R. R. Station.....	3.25
Halawa Mill .....	1.65	Honomakau .....	2.55
Hapuu Landing .....	2.15	Hind's, Hawi .....	3.25
Kohala Mill .....	.50	Hawi R. R. Station.....	4.25
Kohala Mill Landing .....	1.50	Honoipu .....	7.25
Native Church .....	1.00	Mahukona .....	10.50
		Puuhue Ranch .....	7.25

## OVERLAND DISTANCES.

13

### NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill .....	7.0	..	Wight's Corner .....	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niulii Corner .....	12.8	1.3
Court House .....	9.2	1.2	Pololu Edge of Gulch.....	14.5	1.7
Bond's Corner .....	9.7	0.5	Puu Hue .....	5.0	..
Kohala Mill Corner.....	10.4	0.7			

### SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako .....	4.4	..	Mana, Parker's .....	19.5
Puuiki .....	7.7	3.3	Keawewai .....	6.0
Walaka, Catholic Ch....	9.5	1.8	Puuhue Ranch .....	10.0
Puuopelu, Parker's .....	10.8	1.3	Kohala Court House .....	15.0
Waimea Court House.....	11.8	1.0	Mahukona .....	11.0
Waimea Church .....	12.2	0.4	Napuu .....	20.0
Kukuihaele Church .....	22.1	9.9	Puako .....	5.0

### KONA.—KEALAKEKUA TO

Keauhou .....	6.0	..	Kawaihae .....	42.0	4.6
Holualoa .....	9.6	3.6	Honaunau .....	4.0	..
Kailua .....	12.0	2.4	Hookena .....	7.7	3.7
Kaloko .....	16.0	4.0	Olelomoana .....	15.2	7.5
Makalawena .....	19.6	3.6	Hoopuloa .....	21.6	6.4
Kiholo .....	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry	31.6	4.0	Flow of '87.....	32.0	7.2
Puako .....	37.4	5.8	Kahuku Ranch .....	36.5	4.5

### KAU.—VOLCANO HOUSE TO

Half-way House .....	13.0	..	Honuapo .....	32.6	5.0
Kapapala .....	18.0	5.0	Naalehu .....	35.6	3.0
Pahala .....	23.0	5.0	Waiohinu .....	37.1	1.5
Punaluu .....	27.6	4.6	Kahuku Ranch .....	43.1	6.0

### PUNA.—HILO COURT HOUSE TO

	Miles.			Miles.
Keaaau, Forks of Road.....	9.0		Kaimu .....	32.0
Pahoa .....	20.0		Kalapana .....	33.0
Pohoiki .....	28.0		Keauhou .....	50.0
Kapoho (Lyman's) .....	32.0		Panau .....	40.0
Opihikao .....	31.0		Volcano House via Panau.....	56.0
Kamaili .....	26.0		Sand Hills, Naawale, old road	18.5
Kamaili Beach .....	29.0		Kapoho, old road .....	22.0

### TO VOLCANO.—HILO TO

Shipman's .....	1.7		Mountain View .....	16.8
Edge of Woods .....	4.1		Mason's .....	17.5
Coconut Grove .....	8.0		Hitchcock's .....	23.5
Branch Road to Puna.....	9.0		Cattle Pen .....	24.7
Furneaux's .....	13.2		Volcano House .....	31.0

### THROUGH HILO DISTRICT TO

Honolii Bridge .....	2.5		Honohina Church .....	17.8
Papaikou Office .....	4.7		Waikaumalo Bridge .....	18.8
Onomea Church .....	6.9		Pohakupuka Bridge .....	21.0
Kaupakuea Cross Road .....	10.7		Maulua Gulch .....	22.0
Kolekole Bridge .....	14.3		Kaiwilahilahi Bridge .....	24.0
Hakalau, east edge gulch.....	15.0		Lydgate's House .....	26.1
Umauma Bridge .....	16.0		Laupahoehoe Church .....	26.7

## THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch.....	2.0	Kuaikalua Gulch .....	22.0
Ookala, Manager's House.....	4.0	Kapulena Church .....	23.9
Kealakaha Gulch .....	6.0	Waipanihua .....	24.3
Kukaiau Gulch .....	8.0	Stream at Kukuihaele .....	26.0
Horner's .....	8.5	Edge Waipio .....	26.5
Catholic Church, Kainehe.....	9.0	Bottom Waipio .....	27.0
Notley's, Paauilo .....	10.5	Waimanu (approximate) .....	32.5
Kaumoalii Bridge .....	12.5	Kukuihaele to Waimea (approximate) .....	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill...	1.5
Wm. Horner's, Paauhau.....	15.2	Gov't. Road to Paauhau Mill...	1.0
Paauhau Church .....	16.3	Gov't. Road to Pacific Sugar	
Holmes' Store, Honokaa.....	18.0	Mill, Kukuihaele .....	0.7
Honokaia Church .....	20.5		

## ISLAND OF MAUI.

## KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville .....	4.0	..	Paia P. O.....	7.2	..
Paia P. O.....	7.2	3.2	Makawao Court House	11.6	4.4
Hamakuapoko Mill .....	9.2	2.0	Olinda .....	18.5	6.9
Haiku P. O.....	11.0	1.8	Haleakala, edge Crater	26.6	8.1
Halehaku .....	17.2	6.2	Haleakala Summit .....	28.6	2.0
Huelo School .....	20.2	3.0			
Keanae P. O.....	35.5	15.3	Maalaea .....	10.3	..
Nahiku Landing .....	49.9	14.4	End of Mountain Road	15.8	5.5
Ulaino School .....	49.2	.7	Olowalu .....	19.9	4.1
Hana P. O.....	55.6	6.4	Lahaina Court House	25.5	5.6
Hamoa .....	58.2	2.6			
Wailua .....	62.6	4.4	Waiehu .....	6.4	..
Kipahulu Mill .....	66.2	3.6	Waihee .....	7.3	0.9
Mokulau .....	71.8	5.6	Kahakuloa .....	16.3	9.0
Nuu .....	77.0	5.2	Honokohau .....	23.0	6.7
			Honolua .....	27.0	4.0
Wailuku .....	3.8	..	Napili .....	29.8	2.8
Waikapu .....	5.9	2.1	Honokawai .....	33.5	3.7
Maalaea .....	10.3	4.4	Lahaina Court House	39.0	5.5
Kihei .....	12.6	2.3			
Kalepolepo .....	13.9	1.3	MAKENA TO		
Ulupalakua .....	23.6	9.7	Ulupalakua .....	3.5	..
Kanaio .....	26.8	3.2	Kamaole .....	7.3	3.8
Pico's .....	33.8	7.0	Waiakoa .....	13.0	5.7
Nuu .....	40.6	6.8	Makawao P. O.....	20.8	7.8
			Makawao Court House	23.0	2.2

## ISLAND OF KAUAI.

## NAWILIWILI TO

	Miles.	Inter.		Miles.	Inter.
Koloa .....	11.0	..	Wailua River .....	7.7	4.4
Lawai .....	13.8	2.8	Kealia .....	11.9	4.2
Hanapepe .....	20.0	6.2	Anahola .....	15.7	3.8
Waimea .....	27.1	7.1	Kilauea .....	23.6	7.9
Waiawa .....	31.5	4.4	Kalihiwai .....	26.6	3.0
Nuololo .....	44.8	13.3	Hanalei .....	31.8	5.2
Hanamaulu .....	3.3	..	Wainiha .....	34.8	3.0
			Nuololo (no road) .....	47.0	12.2

## OVERLAND DISTANCES.

15

### ISLAND OF MOLOKAI. KAUNAKAKAI TO

	Miles.		Miles.
Meyer's, Kalae .....	5.0	Pukoo .....	15.0
Kalaupapa .....	9.0	Halawa .....	25.0
Kamalo .....	9.0	Ka Lae o ka Laau .....	19.0
Kaluaaha .....	13.5		

### OAHU RAILWAY DISTANCES.—FROM HONOLULU DEPOT TO

	Miles.		Miles.
Puuloa .....	6.0	Gilbert .....	23.0
Aiea .....	9.0	Nanakuli .....	27.0
Kalauao .....	10.0	Waianae .....	33.0
Waiau .....	11.0	Makaha .....	35.0
Pearl City .....	12.0	Makua .....	41.0
Waipio .....	14.0	Kawaihapai .....	50.0
Waipahu .....	14.0	Mokuleia .....	53.0
Leilehua .....	27.0	Puuiki .....	55.0
Wahiawa .....	25.0	Waialua .....	56.0
Hoaeae .....	15.0	Haleiwa Hotel .....	56.0
Honouliuli .....	16.0	Waimea .....	62.0
Ewa Mill .....	18.0	Kahuku .....	71.0

### Revised Areas and Coast Line Distances, Hawaiian Islands.

Prepared by R. D. King, Survey Department.

Courtesy Walter E. Wall, Surveyor, Terr. Hawaii.

Islands	Popltn. in 1910	Miles Square	Acres Area	Coast in Miles Line	Altitude in Feet
Hawaii .....	55,382	4,015.6	2,570,000	297	13,825
Oahu .....	81,993	598.0	382,720	177	4,030
Maui .....	28,623	728.1	466,000	146	10,032
Kauai .....	23,744	546.9	350,000	106	5,170
Molokai .....	1,791	260.9	167,000	100	4,958
Lanai .....	131	139.5	89,305	53	3,400
Niihau .....	208	72.8	46,575	48	1,300
Kahoolawe .....	2	44.2	28,260	30	1,427
Midway .....	35	.....	.....	...	43
	191,909	6,406.0	4,099,860	957	

### Seating Capacity of Principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street.....	1,500
Hawaiian Opera House, King street.....	1,000
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street.....	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
The Bijou (vaudeville).....	1,600
Ye Liberty Theater.....	1,600
Empire Theater (moving pictures).....	930
Y. M. C. A. game hall.....	850

**Total Population by Districts and Islands — Comparative,  
1900 and 1910.**

HAWAII	1900	1910	OAHU	1900	1910
Hilo .....	19,785	22,545	Honolulu .....	39,306	52,183
Puna .....	5,128	6,834	Ewa .....	9,689	14,627
Kau .....	3,854	4,078	Waianae .....	1,008	1,958
North Kona.....	3,819	3,877	Waialua .....	3,285	6,770
South Kona.....	2,372	3,191	Koolauloa .....	2,372	3,204
North Kohala....	4,366	5,398	Koolaupoko .....	2,844	3,251
South Kohala....	600	922			
Hamakua .....	6,919	9,037		58,504	81,993
	47,843	55,382	Midway .....	.....	35
MAUI			KAUAI		
Lahaina .....	4,352	4,787	Waimea .....	5,714	7,987
Wailuku .....	7,953	11,742	Niihau .....	172	208
Hana .....	5,276	3,241	Koloa .....	4,564	5,769
Makawao .....	7,236	8,855	Kawaihau .....	3,220	2,580
	24,797	28,625	Hanalei .....	2,630	2,457
Molokai .....	3,123	1,791	Lihue .....	4,434	4,951
Lanai .....	.....	131	Total whole group	20,734	23,952
				154,001	191,909

**Population in 1910 by Age, Groups, Sex and Race.**

COLOR OR RACE	Under 21 yrs.		21 yrs. & over.		All ages.		
	Male	Female	Male	Female	Male	Female	Total
Hawaiian .....	5,513	5,404	7,926	7,198	13,439	12,602	26,041
Caucasian-Hawn.	2,956	2,813	1,482	1,521	4,438	4,334	8,772
Asiatic-Hawn. ....	1,363	1,391	449	531	1,812	1,922	3,734
Portuguese .....	6,599	6,508	4,974	4,222	11,573	10,730	22,303
Porto Rican.....	1,315	1,216	1,563	796	2,878	2,012	4,890
Spanish .....	610	569.	468	343	1,078	912	1,990
Other Caucasian..	2,359	2,244	6,896	3,368	9,255	5,612	14,867
Chinese .....	3,453	2,930	13,695	1,596	17,148	4,526	21,674
Japanese .....	12,989	11,016	41,794	13,875	54,783	24,891	79,674
Korean .....	400	306	3,531	296	3,931	602	4,533
Black and Mulatto	191	196	224	84	415	280	695
All Other .....	1,355	245	994	142	2,349	387	2,736
Total.....	39,103	34,838	83,996	33,972	123,099	68,810	191,909

**Population of Honolulu, various census periods.**

1890.....	22,907	1896.....	29,926
1900.....	39,300	1910.....	52,183

*POPULATION BY RACE AND SEX, ETC.*      17

**Population of Honolulu and Hilo by Race and Sex, 1910.**

From Tables of the Bureau of Census.

Race	Honolulu		Hilo	
	Male	Female	Male	Female
Hawaiian .....	3,969	3,941	369	295
Caucasian-Hawaiian .....	2,000	2,233	218	200
Asiatic-Hawaiian .....	653	727	98	122
Portuguese .....	3,042	3,105	552	586
Porto Rican.....	210	177	63	46
Spanish .....	141	117	37	30
Other Caucasian..	5,627	3,573	382	295
Chinese .....	6,948	2,626	335	100
Japanese .....	7,659	4,434	1,699	1,080
Korean .....	352	108	26	1
Filipino .....	68	19	66	10
Negro .....	179	148	6	....
All other .....	66	61	15	14
Total.....	30,914	21,269	3,866	2,879

**Comparative Table of Population, Hawaiian Islands—  
Census Periods 1860-1910.**

Islands	1860	1866	1872	1878	1884	1890	1896	1900	1910
Hawaii...	21,481	19,808	16,001	17,034	24,994	26,754	33,285	46,943	55,382
Maui....	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797	28,623
Oahu ...	21,275	19,799	20,671	29,236	28,068	31,194	40,205	58,504	81,993
Kauai ...	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562	23,744
Molokai .	2,864	2,299	2,349	2,581	2,652	2,307	2,504	1,791	
Lanai ...	646	394	348	214	2614	174	105	619	131
Niihau ..	647	325	233	177	.....	216	164	172	208
Kahoolawe.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Midway...	.....	.....	.....	.....	.....	.....	.....	.....	35
<b>Total...</b>	<b>69,800</b>	<b>62,959</b>	<b>56,897</b>	<b>57,985</b>	<b>80,578</b>	<b>89,900</b>	<b>109,020</b>	<b>154,001</b>	<b>191,909</b>
<b>All Foreigners</b>	<b>2,716</b>	<b>4,194</b>	<b>5,366</b>	<b>10,477</b>	<b>36,346</b>	<b>49,368</b>	<b>69,516</b>	<b>116,366</b>	<b>153,362</b>
<b>Hawaiians.....</b>	<b>67,084</b>	<b>58,765</b>	<b>51,531</b>	<b>47,508</b>	<b>44,228</b>	<b>40,622</b>	<b>39,504</b>	<b>37,635</b>	<b>35,547</b>

The nationality of teachers in all schools of the Islands, June, 1916, was as follows: Hawaiian, 87; Part-Hawaiian, 240; American, 527; English, 47; Germans, 20; Portuguese, 89; Chinese, 52; Japanese, 41; Spanish, 2; other Foreigners, 23. Total, 1,128.

**Population by Race and Sex, 1910, and per cent of change since 1900.**

RACES	Total Populat'n	Native Born	Foreign Born	Males	Females	% Change
Hawaiian .....	26,041	26,041	.....	13,439	12,602	12.58 dec
Caucas'n-Hawn. ....	8,772	8,772	.....	4,448	4,334	{ 59.35 inc
Asiatic-Hawn. ....	3,734	3,734	.....	1,812	1,922	
Portuguese .....	22,303	13,766	8,537	11,573	10,730	42.28 "
Spanish .....	1,990	357	1,633	1,078	912	new
Porto Rican.....	4,890	4,830	.....	2,878	2,012	"
Other Caucas'n....	14,867	9,917	4,950	9,255	5,612	40.56 inc
Chinese .....	21,674	7,195	14,479	17,148	4,526	15.87 dec
Japanese .....	79,674	19,889	59,785	54,783	24,891	30.37 inc
Korean .....	4,533	362	4,171	3,931	602	
Black and Mulatto..	695	602	93	415	280	{ 146.03 "
All others .....	2,736	2,632	104	2,349	387	
Total.....	191,909	98,157	93,752	123,099	68,810	24.62 Net Inc.

**Illiterates in the Population Territory of Hawaii, 10 Years of Age and Over, Census of 1910.**

Race	Per cent.	Race	Per cent.
All races .....	26.8	Spanish .....	49.6
Hawaiian .....	4.7	Other Caucasian .....	3.5
Caucasian-Hawaiian .....	1.3	Chinese .....	32.3
Asiatic-Hawaiian .....	1.8	Japanese .....	35.0
Portuguese .....	35.4	Korean .....	25.9
Porto Rican .....	73.2	Filipino and all other.....	32.4

The Census Bureau classes as illiterate any person ten years of age, or over, who is unable to write, regardless of ability to read.

**Estimated Population, 1916, Territory of Hawaii, by Nationality.**

From Board of Health Report.

Race	Number	Race	Number
American		Part-Hawaiian .....	15,334
British	*24,894	Japanese .....	97,000
German		Portuguese .....	23,775
Russian		Porto Rican .....	5,187
Chinese .....	21,954	Spanish .....	3,577
Filipino .....	16,898	Others .....	5,254
Hawaiian .....	23,770	Total .....	237,623

\*Army and Navy, 8,852.

## VITAL STATISTICS.

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### Births and Deaths by Nationalities and Counties, 1916.

Nationality	Oahu				Hawaii		Maui		Kalawao		Kauai		TOTAL	
	Honolulu		Other Dist.		B	D	B	D	B	D	B	D	B	D
	B	D	B	D	B	D	B	D	B	D	B	D	B	D
American..	200	92	10	19	7	7	8	9	.....	.....	6	1	232	128
British.....	31	28	2	1	14	6	3	3	.....	.....	3	50	41	
Chinese....	446	168	64	18	58	22	50	36	.....	3	34	27	655	274
German....	13	16	.....	2	5	2	2	1	.....	1	3	2	23	24
Hawaiian..	159	372	58	66	192	206	142	144	7	67	59	87	617	942
Part Haw'n.	444	169	52	22	139	30	136	37	8	6	52	11	833	275
Japanese...	881	299	741	191	1,040	405	545	278	.....	442	212	3,662	1,385	
Portuguese.	199	101	63	26	333	114	210	80	.....	2	141	56	946	379
Porto Rican	15	14	23	8	119	52	49	19	.....	.....	30	14	236	107
Spanish....	21	7	51	2	71	21	68	26	.....	.....	44	23	255	79
Russian....	7	3	1	.....	4	1	5	2	.....	.....	1	2	18	8
Filipino....	17	26	46	39	91	77	25	28	.....	.....	72	53	251	223
Korean....	24	17	12	6	25	13	11	7	.....	.....	21	8	93	51
Others....	15	9	1	1	4	6	4	5	.....	.....	4	3	28	24
Total....	2,472	1,321	1,124	401	2,102	962	1,258	675	15	79	909	502	7,899	3,940
Unrecorded	3	5	7	3	.....	.....	.....	.....	1	1	.....	19	.....	.....

### Vital Statistics, Territory of Hawaii, 1916.

For Fiscal Year ending June, compiled from Board of Health Report.  
Table of Births, Marriages and Deaths by Counties.

Islands, Etc.	Est. Popltn.	Births	Marriages	Deaths
Honolulu .....	68,000	2,475	1,830	1,321
Other Districts of Oahu County..	39,000	1,129	108	401
Hawaii County .....	65,000	2,109	399	962
Maui County .....	36,000	1,261	234	675
Kalawao County .....	710	15	12	79
Kauai County .....	28,913	910	133	502
Total, 1915-16 .....	237,623	7,899	2,716	3,940
" 1914-15 .....	231,210	7,278	2,730	3,556
" 1913-14 .....	227,391	6,756	3,149	3,707
" 1912-13 .....	217,744	5,568	3,231	3,232

### Nationality of Plantation Labor, June 30, 1915, and June 30, 1916.

Courtesy Bureau of Labor and Statistics, Hawaiian Sugar Planters' Ass'n.

	1915	1916		1915	1916
Americans .....	650	701	Japanese .....	23,973	25,244
Spanish .....	1,485	1,347	Chinese .....	2,139	2,070
Portuguese .....	3,643	3,487	Koreans .....	1,286	1,430
Russians .....	93	59	Filipinos .....	8,243	8,991
Hawaiians .....	992	1,012	Others .....	297	303
Porto Ricans .....	1,448	1,476	Total.....	44,299	46,117

**School Statistics, Territory of Hawaii, 1916.**

From Report of the Superintendent of Public Instruction.  
NUMBER OF SCHOOLS, CLASS, ETC.

Islands	Public Schools June 30, 1916.					Private Schools Dec. 31, 1915.		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii.....	63	232	4,706	4,166	8,872	7	30	873
Maui, Molokai.....	46	133	2,503	2,173	4,676	7	31	1,049
Kauai.....	20	111	2,247	1,951	4,198	2	3	76
Oahu.....	42	328	6,717	5,742	12,459	36	260	5,743
Totals.....	171	804	16,173	14,032	30,205	52	324	7,741

**NUMBER OF SCHOOLS, TEACHERS AND PUPILS.**

Class	Schools	Teachers			Pupils		
		M.	F.	Total	M.	F.	Total
Public Schools.....	171	141	663	804	16,173	14,032	30,205
Private " .....	52	106	218	324	4,226	3,515	7,741
Totals.....	223	247	881	1,128	20,399	17,547	37,946

**AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS.**

Schools	Under 6	6-9	10-15	Over 15	Total
Public Schools.....	140	13,457	15,427	1,181	30,205
Private " .....	1,331	1,974	3,242	1,212	7,741
Total.....	1,471	15,431	18,651	2,393	37,946

**NATIONALITY OF PUPILS.**

Races	Public	Private	Races	Public	Private
Hawaiian .....	3,222	603	Spanish .....	862	86
Part-Hawaiian ..	3,179	1,405	Chinese .....	2,891	1,034
American .....	791	769	Japanese .....	12,564	2,156
British .....	106	44	Porto Rican .....	911	53
German .....	166	98	Korean .....	327	185
Portuguese .....	4,535	1,181	Russian .....	97	31
Filipinos .....	444	55	Other Foreigners.	110	41
			Total.....	30,205	7,741

**Value Domestic Mdse. Shipments to the United States from Hawaii for Fiscal Years Ending June 30, 1915 and 1916.**

Compiled from Monthly Summary of Commerce and Finance,  
Bureau of Statistics.

Articles.	1915	1916
Animals .....	\$ 2,942	\$ 2,247
Art works, paintings, etc.....	10,810	1,000
Bones, hoofs, etc.....	7,615	1,939
Beeswax .....	13,633	17,047
Breadstuffs .....	11,653	15,833
Chemicals, drugs, etc. ....	4,048	3,721
Coffee .....	486,054	343,829
Cotton and manufactures of .....	764	.....
Fibers, unmanufactured—Sisal .....	52,608	68,764
Fruits and nuts .....	6,189,203	6,850,655
Hides and skins .....	210,460	259,623
Honey .....	35,536	53,163
Household and personal effects.....	23,088	6,895
India rubber, crude .....	1,705	.....
Meat products, tallow .....	12,135	7,012
Molasses .....	195,485	327,284
Musical instruments .....	17,528	36,835
Paper and manufactures of .....	1,596	2,863
Pineapple juice .....	43,030	8,750
Rice .....	131,597	141,964
Straw and palm leaf, manufactures of .....	819	722
Sugar, brown .....	51,368,995	52,516,283
Sugar, refined .....	1,580,702	1,901,812
Tobacco leaf, unmanufactured .....	26,832	4,420
Vegetables .....	12,823	14,629
Wood and manufactures of .....	56,916	31,152
Wool, raw .....	70,971	56,829
All other articles .....	41,387	28,459
Total value shipments Hawaiian products.	\$60,610,935	\$62,703,730
Returned shipments merchandise .....	1,220,446	1,685,867
Shipments foreign merchandise .....	255,869	48,700
Total to United States .....	\$62,087,250	\$64,438,297

**Import Values from United States, Comparative, for Fiscal Years Ending June, 1915 and 1916.**

Compiled from Monthly Summary of Commerce and Finance,  
Bureau of Statistics.

Articles.	Domestic Merchandise	
	1915	1916
Agricultural Implements .....	\$ 29,724	\$ 54,227
Animals .....	163,995	201,787
Automobiles and parts of .....	1,096,300	2,102,924
Books, Maps, Engravings, etc. ....	257,363	298,422
Boots and Shoes .....	459,462	494,526
Brass, and manufactures of .....	87,362	96,606
Breadstuffs .....	2,493,054	2,322,166
Brooms and Brushes .....	30,179	38,400
Carriages, Cars, etc., and parts of .....	140,955	228,667
Cement .....	232,522	332,328
Chemicals, Drugs, Dyes, etc. ....	443,559	552,717
Clocks, Watches, and parts of .....	17,445	27,146
Coal .....	19,420	26,378
Cocoa and Chocolate .....	40,846	38,848
Coffee, prepared .....	3,662	4,467
Copper, and manufactures of .....	41,723	133,962
Cotton, manufactures of, and clothing .....	2,129,415	2,367,006
Earthen, Stone and Chinaware .....	67,554	101,421
Eggs .....	65,424	91,698
Electrical Machinery and Instruments .....	351,017	527,876
Explosives .....	324,094	519,501
Fertilizers .....	776,596	1,256,868
Fibers, Textile Grasses, manufactures of .....	200,438	257,285
Fish .....	347,554	403,159
Fruits and Nuts .....	388,328	451,568
Furniture and Metal .....	29,410	71,618
Glass and Glassware .....	141,254	185,928
Hay .....	216,392	279,662
Household and Personal Effects .....	113,467	230,380
India Rubber, manufactures of .....	628,125	791,491
Instruments, etc., for scientific purposes .....	7,715	17,742
Iron and Steel, and manufactures of .....	62,769	223,937
Sheets and Plates, etc. ....	137,638	209,342
Builders' Hardware, etc. ....	241,632	448,373
Machinery, Machines, parts of .....	727,964	928,107
Nails, Spikes, Pipes, etc. ....	2,273,956	3,199,382
Jewelry and manufactures, Gold and Silver....	152,509	211,363
Lamps, Chandeliers, etc. ....	24,454	36,110
Lead and manufactures of .....	74,465	61,980
Leather and manufactures of .....	243,463	281,199
Marble, Stone, and manufactures of .....	16,492	18,411
Musical Instruments .....	69,702	89,486
Naval Stores .....	14,291	14,213
Oil Cloth .....	13,660	20,137

## Import Values from United States for 1915-16—Continued.

Articles.	Domestic Merchandise	
	1915	1916
Oils: Mineral, Crude .....	1,198,649	1,078,258
Refined, etc.....	774,995	911,649
Vegetable .....	71,078	75,452
Paints, Pigments and Colors .....	256,981	367,607
Paper and manufactures of .....	458,692	472,198
Perfumery, etc.....	42,748	49,738
Phonographs, etc.....	48,409	61,628
Photographic Goods .....	113,715	138,076
Provisions, etc., Beef Products .....	25,197	166,918
Hog and other Meat Products.....	567,964	782,840
Dairy Products .....	584,141	629,825
Rice .....	39,755	7,307
Roofing Felt, etc.....	17,122	29,643
Salt .....	23,325	21,724
Silk and manufactures of .....	100,972	211,177
Soap: Toilet and other .....	220,449	286,069
Spirits, etc.: Malt Liquors .....	234,657	268,995
Spirits, distilled .....	157,211	144,105
Wines .....	311,514	259,168
Starch .....	8,501	10,882
Straw and Palm Leaf, manufactures of .....	87,011	94,722
Sugar, Molasses and Syrup .....	107,788	139,770
Confectionery .....	103,225	129,455
Tin and manufactures of .....	69,274	66,214
Tobacco, manufactures of .....	755,891	808,153
Toys .....	47,869	60,808
Vegetables .....	422,465	471,404
Wood and manufactures of—		
Lumber, Shingles, etc.....	1,139,434	1,002,976
Doors, Sash, Blinds and all other .....	297,395	467,006
Furniture .....	164,339	240,659
Wool and manufactures of .....	190,371	317,584
All other articles .....	553,149	757,334
Total domestic merchandise .....	\$24,600,585	\$30,825,187
Total value foreign merchandise from U.S.	404,179	302,390

Correction.—A revision of the above table of imports for the fiscal year 1915 shows a total value of \$25,004,764 for that period, instead of \$20,700,008 as heretofore published. Naturally, this modifies some comparisons in the Commercial Review in last year's Annual, as the increase affects nearly every item in the list.

**Hawaii's Commerce with U. S. and Foreign Countries.**

Total Import with Export Values for 1915 and 1916.

Compiled from Monthly Summary of Commerce and Finance,  
and Customs Reports.

Countries.	Imports.		Exports.	
	1915	1916	1915	1916
Austria-Hungary .....	\$ 3,421	\$.....	\$.....	\$.....
Belgium .....	353	.....	403	.....
Canada .....	43,614	13,718	15,616	54,325
Great Britain .....	361,490	55,495	116,446	454
Germany .....	230,483	170	6,304	.....
France .....	12,983	3,906	.....	.....
Italy .....	2,747	.....	.....	.....
Netherlands .....	11,863	.....	1,497	.....
Norway .....	2,030	.....	.....	.....
Portugal .....	2,519	.....	.....	.....
Scotland .....	.....	17,665	.....	.....
Sweden .....	2,527	.....	.....	.....
Chile .....	464,581	681,487	.....	.....
China .....	42,563	.....	5,380	.....
British India .....	600,404	1,183,878	419	25
Hong Kong .....	347,450	380,192	5,302	3,317
Japan .....	2,575,798	3,113,622	22,357	50,121
Australasia .....	861,637	255,060	7,220	10,632
Oceania .....	32,537	43,455	9,376	23,115
Korea .....	278	.....	63	.....
Philippines .....	114,336	.....	179,345	.....
United States* .....	25,004,764	31,127,577	62,087,250	64,438,297
All other .....	2,409	319,881	6,781	83,036
Total .....	\$30,720,787	\$37,196,106	\$62,464,759	\$64,663,322

\* Not including coin shipments.

**Exports and Imports for Fiscal Year Ending June 30, 1916.**

Exports—Domestic produce to United States .....	\$62,703,730
Returned produce to United States .....	1,685,867
Coin shipments to United States .....	298,610
Domestic produce to Foreign Countries .....	217,897
Total export value .....	\$64,906,104
Imports—Domestic produce from United States .....	\$30,825,187
Foreign produce from United States .....	302,390
Coin shipments from United States .....	2,165,230
Produce from Foreign Countries .....	6,068,529
Total import value .....	\$39,361,336

**Quantity and Value of Principal Articles of Domestic Produce  
Shipped to U. S. for the Fiscal Year Ending June 30, 1916.**

Compiled from Monthly Summary of Commerce and Finance,  
Bureau of Statistics.

Articles		Quantity	Value
Sugar, raw .....	pounds...	1,110,134,328	\$52,516,283
Sugar, refined .....	" ..	27,025,500	1,901,812
Coffee, raw .....	" ..	2,252,364	343,829
Rice .....	" ..	3,641,943	141,964
Fibers, sisal .....	tons....	445	68,764
Fruits: Fresh Bananas .....	bunches..	299,906	205,482
Fresh Pineapples .....	.....	.....	77,111
Canned Pineapples .....	.....	.....	6,547,055
All other .....	.....	.....	21,007
Pineapple Juice .....	.....	.....	8,750
Beeswax .....	pounds...	56,418	17,047
Honey .....	.....	.....	53,163
Molasses .....	gallons...	8,399,014	327,284
Hides and Skins .....	pounds...	1,411,872	259,623
Wool, raw .....	" ..	179,094	56,829
Timber, lumber & unmnfrd wood	M ft....	372	14,774

**Domestic Exports to Foreign Countries for Fiscal Year 1916.**

Articles		Quantity	Value
Sugar, refined and raw .....	pounds..	4,400	\$ 205
Coffee, raw .....	" ..	467,845	75,737
Rice .....	" ..	4,000	150
Fruits and Nuts .....	.....	.....	55,805
Other .....	.....	.....	86,000
Total .....	.....	.....	\$ 217,897

**Summary of Insurance Business, Territory of Hawaii, for 1915.**

From Report of Insurance Commissioner.

Class	Amount Written	Amount Premiums	Losses and Claims paid
Fire .....	\$ 36,014,438.62	\$ 602,634.14	\$ 82,171.21
Marine .....	75,555,338.52	272,637.78	646,408.27
Life .....	3,440,890.00	*785,135.35	224,797.53
Accident and Health .....	.....	35,186.75	4,300.61
Automobile .....	.....	44,199.12	9,861.45
Surety and Fidelity .....	.....	44,868.24	878.70
Employers' Liability .....	.....	9,813.06	3,128.75
Plate Glass .....	.....	2,405.94	49.65
Burglary .....	.....	607.46	.....
Workmen's Compensation.	.....	71,975.91	1,805.06
Other .....	.....	3,024.17	526.88
Total .....	\$114,980,667.14	\$ 1,872,487.92	\$ 973,928.11

\*Of this amount \$645,315.50 is renewals.

**Number and Tonnage of Vessels Entering and Clearing at all Ports, District of Hawaii, 1916.**

[Not including Transports and bunker coal vessels.]

Ports	Entered		Cleared	
	Vessels	Tons	Vessels	Tons
Honolulu — Coastwise .....	224	731,423	284	904,610
Foreign .....	160	615,253	118	484,924
Hilo — Coastwise .....	30	47,342	25	47,009
Foreign .....	..	..	..	..
Kahului — Coastwise .....	17	24,495	13	18,362
Foreign .....	2	3,406	..	..
Koloa — Coastwise .....	5	2,207	13	7,520
Foreign .....	10	9,152	1	923
Mahukona — Coastwise .....	4	3,478	7	6,269
Foreign .....	1	839	..	..
Total .....	453	1,437,595	461	1,469,617

**Value Carrying Trade to and from District of Hawaii, 1916.**

Nationality	Imports	Exports
American .....	\$29,425,654	\$64,495,108
Foreign .....	4,672,556	175,744
Total .....	\$34,098,210	\$64,670,852

**Value of Imports from Foreign Countries, 1916.**

Bags .....	\$1,021,438	Food Supplies .....	\$2,038,817
Chemicals .....	765,314	Spirits .....	140,006
Coal .....	348,693	Miscellaneous .....	1,411,526
Cottons .....	107,256		
Fertilizers .....	155,479	Total .....	\$6,068,529

There will be three interesting conjunctions, in 1917, as follows:

Venus and the moon, March 30.

Venus and Mercury, May 12.

Venus and the moon, October 19. At 9:27 a. m. Venus will pass behind (be occulted by) the moon.

**Hawaiian Sugar Export Statistics from 1901.**

For earlier years see Annuals 1896-1914.

Year	Sugar		Molasses		Ttl. export Value
	Pounds	Value	Gallons	Value	
1901 . . . . .	690,882,132	\$27,094,155	93,820	\$ 4,615	\$27,098,770
1902 . . . . .	720,553,357	23,920,113	48,036	2,187	23,922,300
1903 . . . . .	774,825,420	25,310,684	10	1	25,310,685
1904 . . . . .	736,491,992	24,359,385	11,187	712	24,360,097
1905 . . . . .	832,721,637	35,112,148	26,777	1,282	35,113,430
1906 . . . . .	746,602,637	24,495,427	3,180	177	24,495,604
1907 . . . . .	822,014,811	27,692,997	6,917	355	27,693,352
1908 . . . . .	1,077,570,637	39,816,062	23	20	39,816,082
1909 . . . . .	1,022,863,927	37,632,742	728	79	37,632,821
1910 . . . . .	1,111,594,466	42,625,062	100	7	42,625,069
1911 . . . . .	1,011,215,858	36,704,656	1,801,796	89,708	36,794,364
1912 . . . . .	1,205,465,510	49,961,509	1,734,318	77,241	50,038,750
1913 . . . . .	1,085,362,344	36,607,820	3,736,877	140,610	36,748,430
1914 . . . . .	1,114,750,702	33,187,920	4,110,404	149,597	33,337,517
1915 . . . . .	1,280,917,435	52,953,009	5,202,913	195,485	53,148,594
1916 . . . . .	1,137,164,228	54,418,300	8,399,014	327,284	54,745,584

**Passengers to and from Hawaii, Fiscal Year 1916.**

Courtesy Board Immigration, Labor and Statistics.

Nationality	Arrivals			Departures		
	Cabin	Steer-age	Total	Cabin	Steer-age	Total
Chinese . . . . .	151	563	714	100	604	704
Japanese . . . . .	247	4,195	4,442	128	3,068	3,196
Filipinos . . . . .	1	1,752	1,753	.....	697	697
Koreans . . . . .	1	15	16	.....	17	17
Portuguese . . . . .	.....	180	180	.....	474	474
Spaniards . . . . .	.....	4	4	.....	496	496
Russians . . . . .	.....	33	33	.....	99	99
Hindus . . . . .	1	1	2	.....	.....	.....
Porto Ricans . . . . .	.....	.....	.....	.....	10	10
All Others-European . . . . .	10,067	698	10,765	8,801	146	9,547
Total . . . . .	10,468	7,441	17,909	9,029	6,211	15,240

**Territorial Taxes Collected During Calendar Year 1915.**

Courtesy of J. H. Fisher, Auditor.

Special Territorial ..\$	29,385.50	Dog and Dog Tags ..\$	5,444.28
Real Estate . . . . .	1,314,196.28	School Tax . . . . .	106,635.38
Personal Property ...	993,865.12	10% Penalty . . . . .	3,052.80
Bicycles . . . . .	4,139.25	Court Costs and Int..	7,752.07
Automobiles . . . . .	52,245.10	Advertising Costs ...	105.00
Carriages, Carts, etc..	27,144.75	Income Tax . . . . .	442,410.06
Brakes and Sulkies ..	1,899.20	Special Income Tax..	199,682.44
Road Tax . . . . .	107,475.48	Total . . . . .	\$3,348,804.60
Poll Tax . . . . .	53,371.39		

**Hawaii's Annual Trade Balance, etc., from 1901.**

Year	Imports	Exports	Excess export Values	Custom house Receipts
1901 . . . . .	\$24,964,693	\$29,342,697	\$ 4,378,003	\$ 1,264,862
1902 . . . . .	22,036,583	24,793,735	2,757,152	1,327,518
1903 . . . . .	13,982,485	26,275,438	12,292,953	1,193,677
1904 . . . . .	15,784,691	25,204,875	9,420,184	1,229,338
1905 . . . . .	14,718,483	36,174,526	21,456,043	1,043,340
1906 . . . . .	15,639,874	26,994,824	11,354,950	1,218,764
1907 . . . . .	18,662,434	29,303,695	10,641,261	1,458,843
1908 . . . . .	19,757,270	42,241,921	22,484,651	1,550,157
1909 . . . . .	22,241,041	42,281,777	20,040,736	1,396,379
1910 . . . . .	26,152,435	47,029,631	20,877,196	1,450,324
1911 . . . . .	28,065,626	42,666,197	14,600,571	1,654,761
1912 . . . . .	28,694,322	55,449,438	26,755,116	1,643,197
1913 . . . . .	37,519,620	43,471,830	5,952,210	1,869,513
1914 . . . . .	31,550,257	41,594,072	6,043,815	1,184,416
1915 . . . . .	26,416,031	62,464,759	36,048,728	1,019,534
1916 . . . . .	34,098,210	64,670,852	30,572,642	1,161,051

**Receipts, Expenditures, and Public Debt of Hawaii, from 1901.**

(From Official Reports.)

Years	Revenue	Expenditures	Cash Balance in Treasury	Public Debt
1901 . . . . .	2,140,297.36	2,576,685.53	75,994.97	939,970.31
1902 . . . . .	2,473,172.81	2,382,968.90	287,131.30	1,093,970.31
1903 . . . . .	2,387,715.88	2,603,194.20	73,181.63	2,185,000.00
1904 . . . . .	2,415,356.33	2,844,054.81	56,613.29	3,317,000.00
1905 . . . . .	2,354,783.37	2,240,731.55	59,408.49	3,861,000.00
1906 . . . . .	3,320,998.90	2,512,675.89	335,331.37	3,818,000.00
1907 . . . . .	2,716,624.00	2,665,845.74	348,216.51	3,718,000.00
1908 . . . . .	2,551,522.21	2,508,001.51	391,737.19	3,979,000.00
1909 . . . . .	3,051,526.81	3,160,875.81	453,106.76	3,959,000.00
1910 . . . . .	3,641,245.35	3,435,082.87	845,218.51	4,079,000.00
1911 . . . . .	3,482,560.84	3,730,765.16	822,282.07	4,004,000.00
1912 . . . . .	3,963,588.55	4,002,483.00	690,550.70	5,454,000.00
1913 . . . . .	4,300,780.71	4,261,468.66	716,729.60	6,844,000.00
1914 . . . . .	3,925,187.95	4,263,863.64	366,001.24	6,844,000.00
1915 . . . . .	4,539,241.04	4,446,415.65	464,040.43	7,873,500.00
1916 . . . . .	5,626,905.33	5,553,700.66	539,388.71	8,024,000.00

**Hawaii's Bonded Debt, June 30, 1916.**

Refund Bonds, 1905, 4%	.....	\$ 600,000
Public Improvement 3½% Bonds	.....	1,244,000
Public Improvement 4% Bonds	.....	6,180,000
Total Bonds Outstanding	.....	\$8,024,000

**Assessed Values Real and Personal Property for 1916,  
by races of tax-payers.**

Tables Courtesy of Treasury Department.

Taxpayers	Real Estate		Personal Property	
	No. Tax payers	Assessed Value	No. Tax payers	Assessed Value
Corporations, firms, etc.	664	\$ 68,784,292	816	\$81,260,556
Anglo-Saxons .....	3,178	22,776,400	2,211	3,899,804
Hawaiians .....	5,889	14,603,303	2,120	1,572,668
Chinese .....	984	2,297,500	1,845	2,270,348
Japanese .....	911	1,122,077	3,553	3,380,460
Portuguese and Spanish	2,434	4,338,442	1,522	664,379
Total .....	14,060	\$113,922,014	12,067	\$93,068,215

**Hawaiian Corporations, 1916.**

Class.	Total No.	Number and Capital Incorporated before and after Aug. 12, 1898				Total
		No.	Before	No.	After	
Agriculture ..	147	47	\$44,780,750	100	\$34,662,950	\$ 79,443,700
Mercantile ..	404	41	19,632,625	363	40,274,243	59,906,868
Railroad .....	9	5	7,370,000	4	7,129,960	14,499,960
Street Car .....	2	...	.....	2	1,200,000	1,200,000
Steamship .....	1	1	3,000,000	...	.....	3,000,000
Bank .....	6	1	600,000	5	1,500,000	2,100,000
Savs. & Loan	10	...	.....	10	665,000	665,000
Trust .....	6	1	200,000	5	700,000	900,000
Insurance .....	2	...	.....	2	200,000	200,000
Eleemosynary	149	34	.....	115	.....	.....
Total.....	736	130	\$75,583,375	606	\$86,332,153	\$161,915,528

**Growth of Bank Deposits, Territory of Hawaii.**

Fiscal Year—	No. Banks	Commercial Deposits	Savings Deposits	Total
1907 . . . . .	11	\$ 4,966,042.04	\$ 2,777,554.40	\$ 7,743,596.44
1908 . . . . .	11	5,074,836.16	2,588,722.87	7,663,559.03
1909 . . . . .	11	6,334,991.42	3,322,827.79	9,657,819.21
1910 . . . . .	11	9,033,385.97	4,290,919.57	13,324,305.54
1911 . . . . .	16	10,289,707.89	5,020,555.62	15,310,263.51
1912 . . . . .	17	12,667,162.39	5,521,973.11	18,189,135.50
1913 . . . . .	17	11,641,901.30	5,384,395.72	17,026,297.02
1914 . . . . .	18	10,371,874.60	6,275,790.63	16,647,665.23
1915 . . . . .	19	12,378,041.53	7,736,569.32	20,114,610.85
1916 . . . . .	19	17,317,339.40	9,061,910.28	26,379,249.68

**Taxes by Division and Counties for the fiscal year ending June 30, 1916.**

Courtesy of J. H. Fisher, from Auditing Department Report.

DIVISION OF TAXES	OAHU.	MAUI.	HAWAII.	KAUAI.	TOTALS.
Special Territorial Taxes.....	\$ 33,123.00	\$ .....	\$ .....	\$ .....	\$ 33,123.00
Real Estate Taxes.....	688,480.44	268,012.84	297,216.24	124,745.40	1,378,454.92
Personal Property Taxes.....	497,842.70	188,847.34	231,236.03	141,634.20	1,059,560.27
Bicycles .....	2,896.60	225.60	615.05	309.10	4,046.35
Automobiles .....	44,042.00	9,582.55	12,481.20	7,687.05	73,792.80
Carriages, Carts, &c.....	12,605.00	3,200.00	6,352.50	3,480.00	25,637.50
Brakes and Sulkies.....	534.00	164.00	697.20	346.00	1,741.20
Road Tax.....	44,250.56	17,791.17	30,070.82	15,880.95	107,993.50
Poll Tax.....	21,867.48	8,831.28	14,973.13	7,927.30	53,599.19
School Tax.....	43,717.52	17,661.85	29,907.60	15,849.35	107,136.32
Dog and Dog Tags.....	2,352.41	493.08	1,657.70	561.05	5,064.24
10% Penalty.....	2,457.90	178.85	.838.66	20.65	3,496.06
Court Costs and Interest.....	6,270.80	659.36	1,456.68	16.45	8,403.29
Advertising Costs.....	60.00	4.00	.....	.....	64.00
Income Tax.....	492,962.96	55,629.15	23,884.87	19,782.60	592,259.58
Special Income Tax.....	225,504.41	25,982.58	8,518.76	8,364.10	268,369.85
Total.....	\$2,118,967.78	\$597,263.65	\$659,906.44	\$346,604.20	\$3,722,742.07

SUMMARY OF METEOROLOGICAL OBSERVATIONS, HONOLULU, 1915-16.

Compiled from U. S. Weather Bureau Records, by A. M. Hamrick, Meteorologist.

(Continued from preceding Annuals.)

**TABLE OF RAINFALL, Principal Stations.**

Compiled from Weather Bureau Reports.

Stations	Observer	1915					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>HAWAII</b>							
Waiakea.....	D. Forbes .....	9.60	4.88	7.61	17.98	40.09	14.82
Hilo (Town).....	L. C. Lyman ..	6.34	5.08	9.70	20.72	28.76	9.23
Ponahawai.....	I. E. Gamalielson	11.39	4.86	10.04	20.61	42.56	14.79
Pepeekeo.....	Pepeekeo S. Co.	8.95	5.21	7.26	13.31	34.75	15.00
Hakalau.....	W. F. Klatt .....	8.91	4.61	7.65	13.40	46.49	12.36
Laupahoehoe.....	E. W. Barnard..	7.66	1.50	6.42	10.42	19.08	8.55
Ookala.....	Kaiwiki S. Co..	7.57	1.16	5.96	9.61	23.73	7.31
Kukaiau.....	F. F. Bechert ..	5.48	0.53	4.50	7.35	16.79	7.74
Paauhau.....	G. B. Wait.....	2.84	0.33	3.29	5.16	11.40	5.49
Honokaa.....	Pac. Sug. Mill..	3.39	0.37	3.36	6.06	11.43	6.14
Waimea.....	F. Pinho .....	3.45	1.28	2.01	3.87	5.41	5.43
Kohala.....	Dr. B. D. Bond..	3.62	1.25	3.15	5.36	9.39	5.41
Holualoa.....	S. R. Tsuda.....	7.56	4.66	9.56	2.66	3.53	6.59
Kealakekua.....	Robt. Wallace..	6.58	4.80	12.25	5.86	6.66	4.52
Naalehu.....	Hutc'n S. P. Co.	4.68	1.29	0.44	8.85	14.79	9.40
Pahala.....	Haw. Agr. Co..	3.49	1.90	2.06	7.15	32.49	13.45
Volcano Obs.....	T. A. Jaggar Jr.	4.84	3.05	7.61	13.68	41.29	14.26
Olaa (17 miles).....	Olaa Sugar Co..	11.62	6.12	12.14	21.99	41.14	18.27
Kapoho.....	H. J. Lyman ...	6.03	5.53	....	....	....	20.20
<b>MAUI</b>							
Haleakala Ranch.	L. von Tempsky	0.10	.00	4.37	4.68	11.84	10.81
Pu uomalei.....	A. McKibbin ...	3.22	1.32	7.38	8.60	14.99	8.36
Makawao.....	F. W. Hardy ...	1.08	0.46	4.72	6.02	10.74	8.48
Kula.....	A. von Tempsky	0.96	....	5.72	1.65	4.27	5.76
Haiku.....	Mrs. L. B. Atwater	4.24	1.63	7.01	9.24	12.21	7.58
Keanae Valley....	G. W. Weight..	17.26	9.94	21.56	32.75	35.59	18.98
Nahiku.....	Jno. S. Goodell.	13.62	9.88	16.19	21.94	25.29	15.52
Wailuku.....	Bro. Frank ....	0.44	0.02	1.35	2.52	6.94	4.38
Hana.....	Geo. O. Cooper.	4.95	3.64	2.60	5.74	20.05	12.70
<b>OAHU</b>							
Honolulu.....	U. S. Weath. Bu.	2.02	0.18	1.56	1.44	10.68	9.18
Kinau Street.....	W. R. Castle ...	1.85	0.15	2.09	1.83	12.21	7.89
Manoa.....	C. S. Desky ....	7.03	5.39	9.20	13.19	17.39	11.88
Electric Lt. St....	A. Walker .....	10.01	4.15	9.90	12.05	25.03	14.63
Luakaha.....	L. A. Moore ...	16.33	8.45	13.38	16.88	23.51	19.91
Waimanalo.....	Ed. Todd .....	3.40	1.11	3.43	1.63	8.03	12.03
Maunawili.....	Jno. Herd .....	8.34	3.18	6.57	5.90	12.26	15.49
Waialua Mill.....	A. T. Correa .....	1.00	0.89	0.63	1.55	6.09	13.87
Kahuku.....	R. A. MacMillan	4.24	1.79	1.24	2.56	6.05	8.06
Ewa Plantation..	I. A. Hattie .....	0.86	0.02	1.87	0.72	6.52	7.67
Schofield Brks...	Lt.-Col. Keefer..	1.69	0.67	2.46	3.23	1.68	13.52
Waiaawa.....	A.. Lister .....	1.77	1.22	2.41	5.47	14.24	13.66
Waimalu.....	Hon. Plan. Co..	1.57	0.31	2.49	3.11	11.57	9.62
<b>KAUAI</b>							
Grove Farm.....	G. N. Wilcox ...	2.15	2.55	6.07	4.07	5.67	14.37
Kealia.....	Makee Sgr. Co..	2.29	1.82	1.90	2.79	6.19	14.77
Kilauea.....	L. B. Boreiko ..	3.57	3.16	4.73	5.12	13.09	12.94
Eleele.....	McBryde S. Co.	1.69	1.65	2.14	1.98	4.25	9.18
Kukuiula.....	F. L. Zoller .....	2.30	1.55	5.60	2.65	8.20	13.13
Waiaawa.....	G. Anderson ...	0.23	0.45	0.92	0.00	2.41	8.80

## TABLE OF RAINFALL.

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## Throughout the Hawaiian Islands, 1915-1916.

By A. M. Hamrick, Section Director. Continued from last Annual.

Locality	Ft. Elv.	1916						
		Jan.	Feb.	Mar.	Apr.	May	June	Year
<b>HAWAII</b>								
Waiakea .....	50	11.09	4.08	10.56	11.36	21.87	11.09	165.03
Hilo .....	100	16.44	4.53	9.32	11.88	21.56	9.95	153.41
Ponahawai .....	500	13.21	4.14	10.66	15.74	28.23	13.48	189.71
Pepeekeo .....	100	11.06	1.18	10.01	12.15	15.10	8.81	142.79
Hakalau .....	200	13.82	2.12	12.60	9.04	26.49	12.04	169.53
Laupahoehoe .....	100	11.31	2.88	9.45	10.45	21.88	10.18	119.78
Ookala .....	400	11.52	1.94	9.45	13.44	23.89	....	....
Kukaiāu .....	250	8.86	1.25	6.87	11.79	18.49	4.97	94.62
Paauhau Mill .....	300	12.10	0.84	6.68	6.58	11.00	3.56	69.27
Honokaa .....	470	13.00	0.57	8.16	12.42	17.22	4.38	86.50
Waimea .....	2720	11.69	1.46	4.67	3.80	9.83	3.58	56.48
Kohala Mission .....	521	14.61	0.47	5.00	10.40	10.56	7.20	76.42
Holualoa .....	1450	....	0.75	2.95	5.29	3.16	3.21	....
Kealakekua .....	1450	8.19	0.41	2.48	4.28	7.38	7.05	70.46
Naalehu .....	650	14.26	0.78	11.32	2.72	4.46	0.02	73.01
Pahala .....	850	18.16	1.08	14.02	3.23	3.59	0.03	100.65
Kilauea Crater .....	3984	12.97	4.11	15.04	13.89	17.06	6.58	154.38
Olaa, Puna .....	1530	13.50	3.30	14.64	30.56	26.22	15.00	214.50
Kapoho .....	110	10.37	2.75	13.58	9.00	12.73	5.15	....
<b>MAUI</b>								
Haleakala Ranch ...	2000	31.11	2.03	7.70	3.84	22.02	2.68	101.18
Puuomalei .....	1400	23.58	1.91	10.37	7.97	25.70	9.53	122.93
Makawao .....	1700	22.52	2.38	7.23	4.25	19.57	4.26	91.71
Erehwon .....	4200	24.09	0.87	8.94	4.81	1.85	0.00	....
Haiku .....	700	16.19	0.86	7.59	8.87	12.09	8.56	96.07
Keanae .....	1000	29.87	6.79	22.26	19.61	47.18	31.30	293.09
Nahiku .....	645	27.18	6.50	13.56	12.34	18.16	15.30	195.48
Wailuku .....	250	24.12	0.84	8.14	5.63	4.47	0.81	59.66
Hana .....	145	24.67	3.04	13.27	10.80	3.35	5.10	109.91
<b>OAHU</b>								
U. S. Weather Bu...	108	18.36	3.22	6.79	1.84	1.93	1.35	58.55
Kinau Street .....	50	20.98	3.10	5.78	2.36	2.40	1.35	61.99
Woodlawn .....	300	28.34	4.03	7.93	7.02	18.50	6.23	136.13
Nuuanu Elec. Stn...	405	27.51	2.98	12.82	5.76	18.20	5.82	148.86
Nuuanu Water Wks.	881	27.87	4.03	14.37	7.76	25.03	8.38	185.90
Waimanalo .....	25	28.21	2.68	5.39	3.17	3.49	0.48	73.05
Maunawili .....	250	30.07	4.63	8.46	5.83	8.85	3.20	112.81
Waialua .....	30	17.15	1.45	5.46	2.15	1.33	0.51	52.08
Kahuku .....	25	16.62	1.67	4.40	1.93	2.78	0.59	51.93
Ewa .....	50	16.32	4.82	3.58	1.66	0.56	0.05	44.65
Leilehua .....	990	19.22	3.20	6.40	3.47	2.21	2.13	59.88
Wahiawa .....	675	23.93	6.86	4.67	3.36	5.77	4.93	88.29
Ewa .....	200	22.45	5.85	3.78	1.85	3.00	2.08	67.68
<b>KAUAI</b>								
Lihue .....	200	16.61	5.06	9.95	1.31	3.44	2.28	73.51
Kealia .....	15	7.28	4.35	5.78	0.70	2.55	1.84	52.26
Kilauea .....	342	14.77	3.34	7.93	1.90	4.71	3.91	79.17
Eleele .....	150	9.66	1.79	3.92	1.73	0.48	1.32	39.79
Koloa .....	100	12.75	3.30	4.75	1.30	2.30	1.50	59.33
Waimea .....	30	7.15	2.50	4.18	1.93	0.00	0.12	28.69

## AN EXCEPTIONAL YEAR'S WEATHER

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**R**EADERS of last ANNUAL may recall our closing weather statement to the effect that all indications pointed to a winter which would even up the rain deficiencies of several years past. The statement was fully verified. A *kona* storm of unusual severity set in November 9th, lasting until the 12th, with heavy downpour of rain, resulting in much damage to roadways and cane fields in several sections. At twelve of Hawaii's stations over ten inches of rain fell in twenty-four hours. Thunder prevailed also to an unusual extent.

December weather was likewise much above normal, especially for Oahu and Kauai, rainfall being the greatest at many stations of ten or more years' record. In various parts of the group thunder was reported as "the worst in years", with further damages from wind and flood.

January's rainfall was unprecedented, with the heaviest *kona* storm experienced in years, which did much damage in various parts of the islands. During the prevailing storm of the 19th a cloud-burst flooded Iao valley, Maui, whereby fourteen persons were drowned, many injured, and thirty-four houses wrecked in Wailuku's vicinity. The Kula section, of Maui, also suffered loss of life and damage from flood. Hana was likewise a sufferer in the same storm in damaged houses and newly constructed wharf. Much thunder also prevailed throughout the group. The Weather Bureau summarized the month's precipitation as "above normal at all but two of the one hundred and thirty-four stations reporting throughout the territory." For this city it recorded 18.36 inches, being 15.11 above normal for the month.

We have compiled the following table for convenient reference showing Honolulu's rainfall for the month of January since the year 1873, when an "official" rain record in this city was inaugurated by Captain Daniel Smith:

Year	Inches								
1873 . .	1.98	1882 . .	4.66	1891 . .	2.03	1900 . .	0.74	1909 . .	2.33
1874 . .	9.02	1883 . .	3.65	1892 . .	8.81	1901 . .	3.10	1910 . .	4.79
1875 . .	4.45	1884 . .	1.08	1893 . .	3.14	1902 . .	0.30	1911 . .	4.04
1876 . .	3.73	1885 . .	0.38	1894 . .	3.35	1903 . .	4.05	1912 . .	0.62
1877 . .	3.24	1886 . .	0.99	1895 . .	2.63	1904 . .	5.45	1913 . .	1.35
1878 . .	0.30	1887 . .	7.18	1896 . .	2.38	1905 . .	0.80	1914 . .	2.34
1879 . .	9.42	1888 . .	2.41	1897 . .	2.90	1906 . .	2.21	1915 . .	0.35
1880 . .	2.90	1889 . .	2.88	1898 . .	6.26	1907 . .	12.44	1916 . .	18.36
1881 . .	2.39	1890 . .	4.66	1899 . .	1.22	1908 , .	0.50	.....	....

February opened with an electric storm of remarkable brilliancy on this and parts of the other islands, as a wind-up for the time being, for but light rains followed, with a warmer temperature than usual for this month of the year. Since that time the rainfall has been still above normal in most parts and fairly well distributed, a notable feature being the prevalence of night, or early morning showers throughout the summer, which has so modified the temperature as to have made a hot summer's day this season a rarity.

As if to make the exceptional feature more emphatic the islands were visited by a summer *kona* storm with severe thunder, which prevailed the first week in May, similar to what was experienced in 1886, though that occurred a little later in the year.

We may therefore justly claim this as an exceptional year, and the above comparative table will prove handy for reference in years to come.

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THE FORTIETH anniversary issue of the HAWAIIAN ANNUAL (1914), is proving a valuable reference number for many present-day inquiries, and will not lose interest in years to come. For strangers, and many *kamaainas* for that matter, the exhaustive paper on "In and Around Honolulu" supplies not only descriptive but historic information nowhere else to be found, while "Honolulu Sixty-five Years ago," in its presentation of those early-day features in the narration of customs, conditions and personal mention is enriched also with historic reminiscence.

## CARNIVAL SEASON, 1916

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ACH successive season of Honolulu's merrymaking crowds itself with events well calculated to engender the carnival spirit, though its duration of a full week becomes a strain to many earnest supporters of the festivities, not that it is too much of a good thing that it palls, as it is the effect perhaps of our climate that renders us physically unequal to the demand, so that one is disposed to give an involuntary sigh of relief as the closing day winds up the events with its water pageant and pyrotechnic display.

The business section of the city, while gaily decked out in colored bunting, presenting a number of patriotic displays, nevertheless fell short in the street color scheme which was a feature of 1815. In electric lighting for night effect, however, of government, hotel and prominent buildings, there was left nothing to be desired.

As in the season of 1915, the participation of the military in parade, review, practice drill, athletics, concert and ball, were important features, and in other events their kindly cooperation was a material aid in the week's successes which was recognized and duly appreciated by the public.

Parades this season were more prominent and varied than heretofore. Preceding the grand military parade which appropriately marked Washington's Birthday, was the Parade of All Nations on the evening of the 21st, in which the Ad Club spirit was invoked to release King Carnival with a whoop for the week's festivities at the Executive grounds, and open-air dancing was indulged in for an hour, following which was a masked ball in the Amory. The 22nd itself was full and memorable. After the military parade was that of the decorated autos and island princess *pau*-riders, which proved as attractive and popular as ever, though not as fully represented as on former occasions. Many of the autos and floats showed originality and taste in their decorations. The evening was given over to the lantern parade, principally Japanese, but joined in

by a number of Chinese and others which lent variety and presented an imposing procession that formed a dense throng at Union Square in its passing the official stand.

Patriotic literary exercises were held at the Opera House in honor of the day under the auspices of the Sons of the American Revolution. Benefit performances on two occasions later, a matinee and evening entertainment, was given at same place in support of the Free Kindergarten and Children's Aid Association which elicited much commendation and taxed the seating capacity of the house.

Thursday, the 24th, was designated Hawaiian day of the Mid-Pacific Carnival, the principal feature of which was the pageant of Lonoikamakahiki and Kaikilani, of historic tradition, a subject well worth dramatization, as it possesses action, romance, sports and intrigue. This was given at Kapiolani Park under the auspices of the Sons and Daughters of Warriors, assisted by Kamehameha School students, and was enacted in an imposing manner to portray Hawaiian royal costumes, customs, games and other entertainments illustrative of ancient time, all of which was carried through with dignity and grace.

This event drew an audience estimated at over 2000, with a vast throng without the arena of seats which circled the *halau* of enactment. Royalty and all officialdom were there, as also many distinguished guests and tourists, all of whom evidently enjoyed the scene and performances fully as much as did the *kamaainas*. The size of the arena unfortunately precluded the possibility of hearing much of what was said by the actors. The Hawaiian Band was in attendance, and the queen's singers, near her box, lent their vocal powers from time to time for the public's enjoyment.

The sport events of the season were sufficiently varied in their attractions to suit all tastes. Military meets at Alexander Field took place daily from the 23rd and the Boy Scouts rally was given on the 26th. The largely attended swimming contests were enlivened by several visiting notables in competition with our local experts, whereby several new records were hung

up, "our Duke" again covering himself with glory, and aquatic sports securing a firmer grip on the community with the promising outlook among several aspirants for championship honors. The visit of a champion tennis player lent ginger to the series of games arranged for the racquet wielders from among local crack players in the four afternoon contests that took place. Baseball was not so obtrusive as the year previous, a visiting Coast team *vs.* sundry Army clubs having "official" recognition for public entertainment. These games were daily events, beginning Tuesday. Marathon, Auto and Motorcycle races and wrestling bouts were attractions the closing day.

What would have appropriately rounded out Hawaiian day but for the ball at the Armory and Opera House attractions for that evening, was the Hawaiian Night's Entertainment which was given the following evening at the Executive grounds, and proved a more popular event than those given heretofore indoors, and of that varied character well calculated as an entertainment for the "stranger within our gates," for the charm of Hawaiian music, vocal and instrumental, dances and customs, besides meeting local appreciation.

The Children's Festival, by pupils of the public schools in the grounds of the Grammar School, Emma street, in the afternoon of the 24th. was termed "the most esthetic event of the Carnival", with its varied folk and fancy dances, portrayals of nationalities representative of this Mid-Pacific "melting pot", chorus singing, etc., in which the pupils acquitted themselves with credit to all concerned, proving an attraction of a surprise character to many present, and a pleasant memory for visitors. The color scheme observed in the dress of the pupils, the grouping of nationalities and the tasty floral decorations bore an important part in the afternoon's success.

Another outdoor entertainment was the historical play of "Colonial Days," held at the Moiliili Field on the evening of the 23rd, presenting various patriotic events, made effective by arranged electric lights and pyrotechnic displays that drew the largest paid audience of the season. A further attraction

to this event was the concert of massed bands which materially aided the patriotism of the occasion.

Devotees of Terpsichore were given frequent occasion for their special indulgence, for beside the open-air and masked balls on the opening night, already referred to, was the Army and Navy ball on the 24th. and Directors' ball on the 25th. The spacious National Guard Armory where these were held proved none too large for the gatherings, and lent itself nicely to the flag and foliage decorations for the joyous events.

The closing attraction was the water pageant in the harbor, followed by a pyrotechnic display planned as a repetition of one of the Panama-Pacific Exposition successes. This naturally drew a mass of people to the waterfront and all points of vantage were early occupied. An unfortunate delay in starting the heralded display rendered it interfered with by rain which put the first damper of disappointment on the tired crowd after a full week's enjoyment.

Mention must be made for provision of the inner man in the feature of a daily Hawaian *luau*, in Bishop square, opposite the Young Hotel, for the convenience of the public and meeting the very general desire of strangers to participate in a native feast. The *luau* was limited to four hundred covers and held from noon till half-past two, with the additional attraction of music and dancing.

At Aala Park there suddenly grew up for the occasion a tent village of various side-shows as money-making schemes, afternoons and evenings, where band music and loud-lunged barkers lured the populace. The novelty and attractions of the brilliantly lighted park presented a scene of animation till well toward midnight throughout the week.

Honolulu was favored with a much larger number of visitors than on former occasions, all regular line steamers being overtaxed, and bringing into the service both of the Hill steamers *Great Northern* and *Northern Pacific*, touching at Hilo *en route*, the former making several round trips.

## MISSION MEMORIAL BUILDING

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**A**PPROPRIATELY situated at the seat of mission activities since the arrival of the first missionaries to these islands in 1820, standing well back from the road, is the fine new structure of the Hawaiian Board of Missions, a building of the colonial design of that period, erected as a Memorial to mark that important historic event; keep green the memory of the noble band of Christian workers whose seed-sowing built Hawaii, and establish a permanent home for the efficient prosecution of the work so well founded by them for the uplift and betterment of humanity in the broader field of today.

It is a dignified, artistic, two-story, red brick and concrete building, of the old colonial type, with white pillars and trimmings, occupying the old Kawaiahao Seminary site, on King street. The front division of the structure, termed the administration department, provides the book and editorial rooms, secretary's, treasurer's and other offices, for the several divisions of the Board's activities in church, Sunday school, educational and philanthropic lines among the different nationalities which it seeks to cover, while the rear section contains the auditorium for religious and other public gatherings, capable of seating some 700 persons. Its spacious platform, well filled at the dedicatory services, indicated its adaptness for anniversaries, school exhibitions, or concert purposes.

A meeting of the Board, held in the new building April 14th, commemorated the 96th anniversary of the landing of the pioneer missionary band in Honolulu. Rev. O. H. Gulick gave a brief historic address on the occasion from which we make the following extracts:\*

"Ninety-six years ago today, the brig *Thaddeus* cast anchor in the offing of Honolulu, and Mr. Bingham went early on shore to call upon the authorities to inform them of the permission to land granted by the king and chiefs at Kailua a few days earlier.

"On the 30th of March, 1820, the *Thaddeus*, bearing her missionary passengers, touched at Kawaihae, where they were told by the native fishermen, 'Kamehameha is dead, his son Liholiho is king, the tabus are abolished, the images destroyed, the *heiaus* no longer sacred, and the party favoring idolatry overthrown in battle.' Thus in a quick succession of events the unseen hand of God had opened the way for the entry of the Glad Tidings into Hawaii.

"We are met here today in this building erected by descendants and successors of the missionaries in commemoration of the coming of the early messengers of the Gospel to these shores. \* \* \* \* \*

"The names of these who were passengers in the brig *Thaddeus*, Captain Blanchard, whose vessel had been chartered to bring them to the Sandwich Islands, were: Rev. Hiram Bingham and Mrs. Sybil Mosley Bingham, Rev. Asa Thurston and Mrs. Lucy Goodale Thurston, Mr. Samuel Whitney and Mrs. Percy Patridge Whitney, Thomas Holman, M. D., and Mrs. Lucia Ruggles Holman, Mr. Daniel Chamberlain and Mrs. Chamberlain and four children, Mr. Samuel Ruggles and Mrs. Mary Wells Ruggles, Mr. Elisha Loomis, printer, and Mrs. Maria Theresa Sartwell Loomis.

"In addition to the missionary company four Hawaiian youths were brought home to their native islands, three of whom had for a time received instruction at the school at Cornwall, Connecticut. These three came as assistants for the Mission, while the fourth was Kaumualii, son of the King of Kauai, whose return was a great joy to his loving father.

"It was no gaily planned wedding tour that these young people undertook as they embarked on their long voyage across rough seas to a land and a people unknown to them. As Abraham, heeding God's command, set out for a land remote, to dwell among a people of strange language and unknown character, thus these young believers sailed from Boston for the long, rough and dangerous voyage around Cape Horn, which ended happily at Honolulu.

"Of this company, Rev. Asa Thurston and wife, and Dr. Thomas Holman and wife, with the cordial approval of the king and chiefs, took up their residence at Kailua, Hawaii, where the *Thaddeus* first anchored.

"Though the missionaries had full permission from the king and highest chiefs to land and reside upon the islands,

they delayed a little the landing in Honolulu for the return of Governor Boki, who was temporarily absent.

"At every move and on all occasions these missionaries took pains to show respect and deference to the authority of the chiefs, thus promoting that deference to constituted authority which has been a feature of Hawaiian society through the century of peace.

"The guiding hand of God attended not only the opening events, but was manifest in the succeeding stages of the work. Kamehameha, who was enabled to subdue all opposing chiefs and to unite the nation under his powerful sway, was a devotee of the most resolute character, using the artful priests for the accomplishment of his purposes. When his government had acquired cohesion and the families of high chiefs had acquired thorough acquaintance with one another his work was done, and he passed away on May 8, 1819, five months before the missionary company sailed from Boston, and ten months before their arrival in Hawaii.

"Kamehameha left his kingdom to his son Liholiho, naming also his favorite wife Kaahumanu as his son's *kuhinanui*, or prime minister.

"Here began the missionary work of gaining the confidence of chiefs and people. A knowledge of the language was the first requisite and also the reduction of the language to writing.

"Honolulu was but a village of grass huts.

"Governor Boki granted to the Mission the ground upon which this building now stands and the lot on which the mission buildings stand on the south side of King street called Kawaiahao. The materials for a small building were brought from Boston in 1821, but permission for its erection was delayed because it was not fitting that these foreigners should have a frame dwelling while the king abode in a thatched house.

"Little by little, with infinite patience and great tact the hearts and minds of chiefs and people were won. Schools were established, the little hand printing-press brought on the *Thaddeus* was set up and primers for use in the schools were printed. The wonders of writing and printing and of reading ere long fascinated chiefs and people. The simplicity of the sounds of the language which could be correctly represented by twelve letters, and the fact that every word was spelled exactly as it sounded, made reading very easy. The art of

learning to spell correctly required but little time. Schools soon filled the land.

"King Liholiho, known as Kamehameha II, did not display the strength of character of his father, but showed himself as a wayward and headstrong youth. Desiring to see the world, he embarked with his queen and several high chiefs for England November 27, 1823, and reached Portsmouth May 22, 1824. On the 8th of July the queen died, and the king died on the 14th in London.

"Upon the departure of the king for England the reins of government of the group at once fell in the hands of Kaahumanu, one of the widows of Kamehameha, and the one named by him to be the *kuhinanui* or prime minister of the kingdom. The heir to the throne, Kauikeaouli, the younger brother of Liholiho, was at this time but eleven years of age.

"Kaahumanu proved to be an able ruler, and became the most remarkable woman of the Hawaiian race. Her early bearing or attitude toward the missionaries was haughty and repelling. The hand of God touched her and she fell ill. In her distress and hour of need Mr. and Mrs. Bingham were very attentive and kind, doing all that was possible for her comfort and restoration to health. This kindness melted her heart and impressed her mind. She became a devout Christian and an earnest worker among her people for the spread of the Gospel.

"The influence of this remarkable woman in aiding the early missionaries to bring the light of the glad tidings of life to her people is incalculable. Her exercise of governing power continued from the departure of the king for England in 1823, to her death in Manoa valley on the 5th of June, 1832.

"Another very distinguished woman who did much for the advancement of Christianity in this once heathen land was Kapiolani, the wife of Naihe of Kona, Hawaii, who acquired wide fame by her courage in opposing the worship of the goddess Pele, and her display of moral courage in visiting Kilauea and breaking the tabus by eating the sacred berries.

"Time fails me to speak of Hawaiian preachers and teachers who gave the highest evidence of faith, courage and zeal in Gospel work. Among many, mention may be made of Blind Bartimeus of Wailuku; of David Malo, the first of Hawaiian pastors; of Kaulia of Hilo; the eloquent Kuaia, long pastor

of Kaumakapili Church; of Kekela and Kauwealoha, life-long heroic missionaries to the Marquesas Islands. \* \* \* \*

"The Christian churches of Hawaii have given most substantial proof of their faith in the Gospel they have received by the fruits they have brought forth. Whence have come the neat chapels that are to be found in every part of the land? Whence the fine church edifices occupied by the Hawaiian Christians of our fine cities? The creation of these buildings has been accomplished entirely by the contributions of the Hawaiian Christians themselves.

"The two missions of the native Hawaiian churches, one to Micronesia, which was commenced in 1852, and that of the Marquesas, entered upon in 1853, gave most indisputable evidence of the power of the Word in the hands of this redeemed people. For over fifty years these two missions held the Gospel banner aloft in the once benighted islands of our wide ocean. The fruits of their faithful Gospel seed-sowing are recognized by all.

"For a brief summary of the American Board's mission to Hawaii it may be said that it was opened on the arrival of the brig *Thaddeus* in 1820 and ended upon the departure of the last couple, Rev. and Mrs. Leadingham, who left Hawaii for the States in 1905. The whole number of missionaries sent to this group during the eighty-five years was one hundred fifty-three, seventy-four men and seventy-nine women. Of the seventy-four men, forty-eight were ordained preachers, twenty-six were laymen and counted as assistant missionaries, being of the following professions, namely: physicians, printers and school teachers. These all having been permitted to do the glorious work appointed them have entered into rest and their works do follow them. We rejoice as we behold what God has wrought through the Gospel in the hands of His servants." \* \* \*

The following day the Mission Children's, or Cousins', Society held its Annual gathering in the Memorial Building, in which it possesses an interest, with a room and adjoining vault for valuable records.

April 16, 1916, the building was formally dedicated by appropriate services to the uses for which it was designed, held in the auditorium. Public interest was manifest by taxing its capacity on the occasion, the nature of the work of the

Hawaiian Board very naturally claiming the attention and sympathy of the various nationalities represented here.

The order of exercises were as follows:

Doxology.

Invocation—Dr. Doremus Scudder.

Scripture Reading—Rev. A. V. Soares.

Anthem—Young People's League.

Dedication of Building—Led by Rev. O. H. Gulick, superintendent emeritus of the Hawaiian Board.

Prayer of Dedication—Rev. O. H. Gulick.

Response—Young People's League.

Hymn—"Come Thou, Almighty King."

Presentation of the keys.

Address—Rev. John F. Cowan, Kohala Union Church.

Hymn—"Onward, Christian Soldiers."

Benediction.

Among those seated upon the platform were Mrs. Sereno Bishop, the oldest living member of the Cousins' Society, Rev. H. H. Parker, the oldest original member of the Hawaiian Board, and Mr. P. C. Jones, who, with his wife, were the donors of the building previously occupied by the Hawaiian Board, and the originators of the plan for the erecting of this Mission Memorial Building.

Introduced by President F. J. Lowrey, descendants of the early Missionaries came forward presenting the keys to the various departments of the building, as follows:

Secretary's Office, to H. P. Judd by W. J. Forbes, son of A. O. Forbes, a former secretary of the Board.

Treasurer's Office, to Theodore Richards by G. P. Castle, son of S. N. Castle, a charter member.

Friend Office, to Miss Emily Warinner, by Geo. P. Cooke, grandson of Amos Starr Cooke and W. H. Rice.

Book Room, to W. E. Pietsch by Miss Charlotte Hall, granddaughter of E. O. Hall, first Treasurer of the Board, and daughter of W. W. Hall, second Treasurer.

Hawaiian Room, to J. P. Erdman by Joseph Emerson, son of Rev. J. S. Emerson, missionary pastor at Waialua.

Japanese Room, to F. S. Scudder by Phillip L. Weaver, grandson of Richard Armstrong, former pastor of Kawaiahao.

Christian Endeavor Room, to A. Akana by Mrs. Jonathan Shaw, granddaughter of Rev. A. Bishop and daughter of Rev. Sereno Bishop, Seamen's chaplain and former editor of *The Friend*.

Chinese Room, to N. C. Schenck by E. B. Clark, grandson of Rev. Ephraim W. Clark, former pastor of Kawaiahao.

Cousins' Room to Mrs. R. W. Andrews by Miss Agnes Judd, granddaughter of Dr. G. P. Judd, medical missionary in Honolulu.

Board Room, to F. C. Atherton by H. G. Dillingham, grandson of Rev. Lowell Smith, former pastor of Kaumakapili Church.

Auditorium to A. C. Alexander by F. S. Lyman, grandson of D. B. Lyman, founder of the Hilo Boarding School.

The address of the day, delivered by Rev. John F. Cowan, D.D., of Kohala Union Church, dealt in a masterly way with the new situation confronting the Missionary and the Christian community of today.

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## PUNAHOU'S SEVENTY-FIFTH ANNIVERSARY

BY FRANK E. MIDKIFF.

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IT IS usually a statement to elicit the profound surprise and respect of the tourist, to tell him that there exists in a flourishing condition an educational institution that has been serving the young here in Hawaii for over three-quarters of a century.

Punahou Academy, during the week of June 18 to 25, 1916, celebrated her seventy-fifth birthday with a diamond jubilee. The three days, June 20, 21 and 22, were especially filled with commemoration activities. Townspeople attended the exercises in large crowds; the islanders came in numbers from even the remote districts, and so great was the attraction to the local public and to the tourists, that many mainland newspapers were led to extensive and very favorable comment. In connection with the public demonstrations,—chief of which was the great anniversary pageant—there was carried on a

broad and successful campaign for increasing the endowment of the school and for enlarging its equipment.

The idea of fittingly celebrating so great an event as a seventy-fifth anniversary had long been formulating in the mind of President A. F. Griffiths. Accordingly, for a year prior to the June exercises plans were in operation and committees were actively working toward a great memorial year. It was hoped that the glorious and sacred past of the old school might be so presented to the school body and to the patrons, friends, and public generally, that a permanent and loyal gratitude toward the early founders and teachers should be engendered, that a generous response to the present needs of the school might result, and that a more extensive and important service by the school might be assured the Islands and the nation. The Trustees of the institution, as well as a number of influential minds of the community, were enthusiastic; and, inspired by their freshened memories of Punahou's early heroism, and awakened by the worth and merit of their undertakings, they very naturally met with good support and ever-growing success.

Committees were selected for various purposes. To write a libretto for the pageant it was decided that none was better fitted or more capable than Miss Ethel Damon. Her intimate acquaintance with so many missionary families distinguished her among those qualifying for the work, and the pageant book, when it appeared after almost a year's preparation, fully justified the confidence the Trustees placed in Miss Damon's taste, breadth of knowledge, sympathy, and ability. The book is a volume of worth, both as a souvenir of literary merit and especially as a loving and faithful tribute to the great accomplishments of the early white inhabitants of the Islands. Miss Mary Winne, who so capably and satisfactorily managed the pageant, cooperated with Miss Damon and together these two interviewed scores of *kamaainas*, spending days with them and actually living with them again in the atmosphere of the past. The town will appreciate this research more and more as the

years go by, for many reminiscences and stories were recalled from the fast vanishing past,—stories that are now safely recorded, but which would otherwise have gone with the minds of the beloved aged who still dream them over.

Many other committees were appointed, so varied was the work in preparing for the celebration. Not only was the pageant to be presented; there were the big memorial meeting and the diversified program of a regular Punahou Day to provide for.

On Tuesday night, June 20, Punahou and her friends gathered in the historic old Kawaiahao Church, to hold the first commemoration exercises.

Here in this church, built by the early missionaries and used for the fortieth and fiftieth anniversary celebrations, a splendid program was rendered. Judge Sanford B. Dole presided. The invocation was pronounced by Reverend Orramel H. Gulick, the oldest Punahou student—a member of her very first class. Mrs. Emma Smith Dillingham, writer of the poems of the twenty-fifth, fortieth, and fiftieth anniversaries, read a beautiful salutatory poem which she had been invited to write for the occasion. Mr. W. R. Castle's address reviewed in a forcible way the heroism of the missionaries that led them to this land and that caused them to build schools for children. He also reviewed the securing of the Punahou tract by Hiram Bingham, and its dedication to missionary school purposes, adding a resume of the school's growth from the time it acquired its charter until the present day. The next address was by Reverend J. M. Lydgate, who forcibly showed the products of the early missionaries' faith and portrayed the difficulties surmounted and the wonderful achievements of these unselfish people.

Two remarkable addresses of this occasion were those by William Lyon Phelps, Ph.D. of Yale, and Dean Armin Otto Leuschner, Sc. D. of Michigan. Dr. Phelps spoke on "The Culture of Happiness." His address was a wholesome inspiration to happy and contented living. It met with the heartiest

acceptance of all who heard it, and everyone who heard it benefitted and resolved to follow the advice and get more out of life by adhering to his maxim: "That man is the happiest who thinks the most pleasant thoughts."

Dr. Leuschner's address was on the subject: "Some Tendencies of Modern Education." The burden of his scholarly and convincing address was that education is toward the practical, living, applied studies, and that Punahou and Hawaii have marvelous opportunities to act as a leaven and a source of light at our western gateway, just as the Statue of Liberty symbolizes an enlightenment to the immigrating millions at our eastern shores.

The music for the occasion was furnished by Miss Margaret Electra Clarke, at the organ, and by a splendid chorus of men's voices, under the leadership of Mr. Walter Dillingham. The benediction was pronounced by Reverend H. H. Parker, pastor of the Kawaiahao Church, and a member of Punahou's first class.

On the following day occurred the great anniversary pageant. This was held on Alexander Field, a setting most appropriate and well fitted for the staging of such a panorama. Three large platforms were erected, about which and upon which the twelve hundred members of the pageant cast performed. These platforms were equipped to represent the mountains sloping down to the spring, "Kapunahou". The original boundary stone, "Pohakuloa", the earliest school building, and many such features of historic interest were shown on the stage.

The pageant was gorgeous and most elaborate, but it was also thoroughly artistic. The music, episodes, pantomimes, properties—all were worked into a harmonious unit by the production committees, directed by Mr. L. Young Correthers.

Through eleven episodes with interludes, the story of Punahou was carried—from its legendary beginning, when Kane called forth the spring from the barren, parched ground to form Kapunahou, through the cession of the land from Liliha

and Boki to Hiram Bingham, through the erecting of the first school building; the granting of the charter, the struggles of the early teachers and Trustees, and on through the experiences of the early and the medieval Punahou right up to the present standing. The final spectacle, and the most impressive and significant, was when the old graduates from classes beginning with 1841 and coming up to 1916, in the costumes of the successive years, marched in procession, formed a grand concourse, and hailed "the old, new spring" in chorus.

The keynote of the production was the past accomplishment and the future possibilities of an unselfish, faithful spirit of education. The cooperation necessary to make this pageant a success was heartily given by hundreds of friends of the school, and the giving renewed ties and bonds of love between the present school and a large body of alumni who were becoming more and more withdrawn from their alma mater. The pageant was an excellent thing in every way.

A genuine Punahou Day on Thursday, June 22, closed the commemoration exercises. The day began with a reception. Then, after meeting the Trustees and the distinguished mainland guests, the friends of the old school repaired to Cooke Library and fondly dwelt upon the collection of old photos, pamphlets, and other memorabilia there assembled. Many and interesting were the exchanges of reminiscence, and *aloha* was free and full. All Punahou families registered their names *en bloc*, for future reference and comparison. The remainder of the morning was spent in playing old-time games: wickets, peewee, *aipuni*—even a ring tournament was held. After the games an old-fashioned basket luncheon was enjoyed on the lawn.

At 1 o'clock of that day all Punahouites met and listened to a concluding program. Governor Frear presided, and spoke of the broad "influence of Punahou in Hawaii, and of Hawaii's debt to Punahou." Cyril Damon in speaking for the alumni, introduced "Punahou's oldest graduate and her youngest son," Orramel H. Gulick and Deane Howland. Representing the

will and hopes of the mothers of Punahou, Mrs. W. J. Forbes spoke earnestly, and assured all that the mothers wish Punahou to continue in its simple and unpretentious, meritorious fashion to make good men and women out of the children.

A speech that was anxiously awaited was that of Mr. Frank C. Atherton. In this address Mr. Atherton reviewed the work of the committee for increasing the endowment, and as the result of the campaign he announced the gifts of a large number of friends stating that about \$350,000 had been pledged. This sum included the gift of a large auditorium by the Dillingham family.

"Punahou's Duty and Opportunity" was the subject of the speech by Mr. Lorrin A. Thurston. Mr. Thurston showed that because Punahou had been established by a group of men and women who had come to serve a strange race, and because of its unique social and geographical situation, and because of its past adherence to duty and higher ideals, it stands as an institution wonderfully fitted and consecrated to solve the grave problems—racial, social and economic—that begin to loom big in Hawaii.

After the speeches the day was happily concluded by the beautiful æsthetic dancing of the girls and the military maneuvers of the Punahou cadets.

This was a week that will long be remembered in Hawaii. It fulfilled its purpose—to review the past in such a way that the school may better serve the future.

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HAWAII's fair fame, as she is coming into publicity lime-light, is being sadly handicapped in the effort that is being made to popularize the questionable *hula* in the eastern states as a society attraction.

FOR THE calendar year 1915, Honolulu's shipping arrivals were 593, notwithstanding the Panama canal blockade, a gain of 125 over the preceding year.

## MAUI'S HEIAUS AND HEIAU SITES REVISED

BY THOMAS G. THRUM.

TAKING up again the subject of "Heiaus and Heiau Sites Throughout the Hawaiian Islands" for a revision of those of the Island of Maui, as listed in the HAWAIIAN ANNUAL for 1909, by a personal investigation through several of its more noted districts for such data thereon as might yet be obtainable from the older Hawaiians, the following account will show the measure of my success and desirability of the effort. Arduous though the journey was for one several years past three score and ten, in no other way could the required information be secured to correct and complete this line of Hawaiian historic research, assumed in 1906.

In the series of "Tales of the Temples" in the ANNUAL above referred to may be gathered the fact of the political importance in ancient times of the districts of Hana, Kipahulu, Kaupo and Wailuku, hence their famed temples. To verify ancient tradition and gather such further particulars on the subject as might still be available at this late day, I availed myself of an opportunity to visit Maui on this quest.

Much interest was manifest among the people at various points on learning the object of my visit of inquiry, which was encouraging, though they all admitted the strangeness that a foreigner should seek to identify and list for preservation their *heiaus* and traditions connected therewith, which things of the past they were taught to forget. This was assigned as a reason for their lack of knowledge other than general, relative to the temples of their districts, which materially reduced the information sought, and was the cause of conflicting statements that by no means lightened the search.

Circumstances directed me to Hana as the starting point in these investigations. Here, at the famed fortress of Kauiki, aside the entrance to the little harbor, on the west, were located the war temples of Hua-a-Pohukaina, an early Maui king, who, en route from Lahaina, erected the *heiau* of Honuaula at this

point to propitiate the gods for aid in his expedition against the district of Hilo. Succeeding in this raid he returned and built another, named Kuawalu. The first named was built at Wananalua, the foundation lines of which, in 1908, indicated its size as 120 x 70 feet. But a few of its large stones now remain, which line the roadway near the native Protestant church, the site of the war temple being occupied by the older of the two school houses in the well kept premises at the base of the hill, back of which premises, up the hill a little ways, is the concrete tomb of A. Unna, a long resident and managing owner of the Hana Plantation. Nothing could be learned relative to Kuawalu, even its site which tradition assigned to Kauiki was forgotten.

Confusion prevails relative to the formerly listed Kaniomoku *heiau* and place of refuge of the district. Some maintained that the *heiau* of this *puuhonua* was called Keaumuku; others held that it was simply the place of refuge of the district and held no temple. It is famed, however, as the place where Kaahumanu, the favorite queen of Kamehameha I., was brought at an early age from her birthplace at the base of Kauiki and reared till well grown. A visit to the locality revealed no indications of a *heiau* structure.

At Kainalimu, a rocky section east of the harbor, is the ruins of a twin *heiau*, named Kauleilepo-Kauleiula, one measuring 42 x 54 feet, the other, somewhat lower, of 22 x 26 feet, twenty-five feet distant, but connected by a constructed roadway built up eight feet from the ground, with sloping walls, giving a path four feet wide. The larger section showed three sets of walls at its southern end, of rounded stones, not of this neighborhood. Both divisions were of open platform character and had been surfaced with small stones, but these were now much disturbed.

Not far from Hana's pebble beach, at Waikakihi, is a small rounded structure, some five feet high of about twenty feet in diameter, known as Kaiapuni, which residents of the locality held to be a *heiau*. The absence of distinctive features,

and its proximity to the shore led me to suggest it as being more likely a *ko'a*\* to Kuula, but the idea was promptly resented. On the top of Kaiapuni repose the remains of the father of J. U. Kawainui (the staunch editor of the *Kuokoa* in the reform days of Kalakaua's time), in accordance with his request.

Kaluanui at Paikalani, Hamoa, was a *heiau* that belied its name, for instead of its being "the great pit" it proved to be a small-sized, odd-shaped walled structure built on a rocky spur or knoll, the *makai* wall of which was thirty feet from the ground. It is situated some distance from the road, seaward, in a tangle of vine, fern, guava and shrubs. Clearing it for measurements showed a seaward wall of 57 feet, by a width of 40 feet. On the south side the wall jogged out, midway, 12 x 15 feet, probably following the land contour. The paving of the *heiau* had been much disturbed, leaving no distinguishing temple features for study. In a level cane field a short distance *makai* of Kaluanui was another structure of 40 x 45 feet in size, the well pebbled surface of which was but four feet from the ground. Residents of the vicinity maintained that it belonged to Kaluanui, the name applied to both, but it showed no marked *heiau* divisions to indicate its purpose. A little distance westward, also in a cane field, some scattered stones and a clump of trees marked the site of Haleolono, a *heiau* said to have been of good size.

Kaikaiea, at Paauhau, as also Kilinui and Lanakila, these two latter about half a mile apart, at Kaalaе, were reported as medium sized *heiaus* back in cane fields. Kilinui was classed as a sacrificial *heiau*, while Lanakila afforded refuge in time of war. In the vicinity of these two *heiaus* was said to be the birthplace of Kapaakea, father of Kalakaua and Liliuokalani.

Kipahulu was the next point of attraction for an investigation of the once important temple of Kanekauila. This, the

\* A fisherman's *heiau*.

largest *heiau* in the district, is situated on a prominent knoll just below the main road, for years past occupied as the site of the Catholic church. A visit to the premises found it ruined of all its ancient *heiau* divisions, though its pebble-paved features in places were still in evidence, especially a section 53 x 64 feet in the northwest corner. The front or seaward wall of the structure was 173 feet long, standing N. E. and S. W. Its depth, or *mauka* boundary, was not easily definable but must have been fully 250 feet. Some confusion prevails relative to this spot, several parties maintaining that it is the site of two *heiaus*, known respectively as Kakalahale and Kanekauila. If such was the case it probably was a reconstruction of Kanekauila which thereafter became known as Kakalahale, the name of the land upon which it stands. No historic data on this point, however, could be gathered, nor could I find evidence of two structures, or distinct sites of such.

Outlines of a small *heiau* called Manekineki was found nearer the road, eastward, on our way to Maulili, at Kuikuiula. This latter temple was located near the shore, not above the mill as had been reported. But a small portion of its heavy seaward wall was visible, the rest being lost in a dense jungle of *hau* bush. This was one of the important *heiaus* cared for by Kamehameha, and Liholiho, his son, at a very early age, was empowered with the sacred duties of its reconsecration, on their way from Hawaii preparatory to the *peleleu* fleet movement of 1802.

Of Napua at Kaumakani, and Poomanini at Puaalau, nothing now remains but a recollection of their small size, of the *hooulu-ai*, or husbandry class. A venerable bearded native woman, with thin but decided mustache and whiskers, void of Hawaiian type features, to whom I was referred as an authority of the district, claimed the name of the former was Namahana, and Maopua the latter.

The next *heiau* visited was that of Paokahi, situate some little distance from the shore road of the deep gulch of Lelekea, whose ruins were all rooted over by the pigs of a lone Japanese

in this once well-peopled valley. The front or seaward wall of Paokahi, standing N. E. and S. W., measured 149 feet in length. Owing to its decided ruined character, and constructions for present use it was hard to define its *mauka* boundaries, being also in a dense growth of hala, kukui, breadfruit and guava, but it must have been 100 feet wide. The locality is said to get the name of Lelekea from the incident of an ancient *alii* being brought to the temple in a weak condition for restoration expiring there,—“breath flown”.

Well up on the Kaupo side of this valley is said to be the site of a *puukaua*, or ancient fort, which may be seen from the cliff-trail in places, but my inexperienced steps in such precipitous paths were too timorous for the exercise of my Missourian trait. I was not disposed to dispute the assertion, nor felt in the right place to verify it.

The district of Kaupo was the next objective point, to reach which this and another like precipitous cliff-trail was to be traversed with two milder ones between. I therefore took a day's rest to brace up for the occasion and await an experienced guide and companion for what historic Kaupo held in store for me, and hereafter, when I meet that frequently misused word “negotiated” applied to a vessel's passage, it will be a reminder of my journey after leaving the roads of Hana and Kipahulu and taking the trail that ended only at Ulupalakua.

After unsuccessful efforts to meet several old natives of Kaupo on the way, upon the subject in hand, I made for the Marciel homestead, some two miles from the road, where, on return of the men of the household, the sons all entered enthusiastically in aid of my search. Securing the help of an old native we were led to the *heiau* of Haleokane, at Maua, not heretofore listed, the dimensions of which were 133 x 79 feet, its length being practically north and south. Its western wall had a jog inward 13 x 27 feet, some fifteen feet from the south corner. The whole was in a bad state of ruin, with structures in and around it for more modern uses. Haleokane is credited to the marvelous work of the *Menehunes* for its construction

in one night, in addition to which they started the same night upon another, named Puukini, a short distance further up the slope, but at completion of the front wall of 200 feet and partial construction of the eastern side wall, daylight came upon them and they had to quit, hence its unfinished state, for tradition says this pigmy race never resumed work on any of their undertakings; everything had to be finished in one night, else it forever remained incomplete.

Next day we set out for the famous *heiau* of Loaloa, to which the people of other districts all pay deference, both for its size and ancient power. It occupies a commanding site on a prominent hill *mauka* of the road, in the land of Kumunui. Climbing to its height we found an interesting pile of ruins, the seaward face of which ran 101 feet. It was a walled structure standing N. N. W.—S. S. E., of two or more sections, the northern division measuring 101 x 264 feet. The rest of the *heiau*, somewhat lower and of irregular lines and more disturbed floor was probably fully as large, westward, though the various inclosures for modern uses thereon, with others adjoining, rendered it difficult to define its original upper boundaries. Running nearly across the *heiau*, some twenty feet from the higher and less disturbed section, was a distinct path of broad, smooth stones, as in the temple of Puukohola, at Kawaihae, the purpose of which could not be learned. The surrounding walls in places have been removed, and on the eastern and seaward front the stone wall has been changed to a row of pyramids, breast high, some four to six feet apart. Its northern section is some twenty feet or more from its base, in height, built up in three and four tiers of rock wall. This *heiau* of Loaloa is credited in history for its erection to Kekaulike, about 1730, as also those of Popoowi and Puumaka-a, prior to his raid on the Kona district of Hawaii.

Investigations this day showed the former published list for Kaupo to be quite in error. The particulars given to Kanemalohemo, at Popoowi, belonged to Loaloa. Popoowi was

said to be a *heiau*, not the location of Kanemalohemo. This latter was simply a sacred place at Mokulau, *makai* of the road, famed as the spot where a certain high priest of the Popoiwi temple stood and decried the overthrow of the *kapu* system and abandonment of the gods, which would result in the extinction of the order, and in his distress and despair he disrobed at this spot before all the people, hence the name, and foretold his own death, which occurred mysteriously the next day.

Popoiwi is referred to as a *heiau* on a land of same name just above the road, though known to some of the old residents as Hanakalaauai. This was found to be so irregular and dilapidated as rendered it difficult to approximate its shape, or size, other than an average one. In places at the base it seemed to have been L-shaped, but its confused surface failed to confirm this.

Puumaka-a at Kumunui, another of Kekaulike's war temples which received the consecration care of Lilohliho in Kamehameha's behalf, was not visited, owing to the reported reduction of its ruins.

Ohela was a *heiau* reported at Nuu, but no particulars could be obtained regarding it, and on passing through the vicinity on my way to Kahikinui, not a single resident was met with.

In the Kahikinui district the *heiau* of Kahuahakamoa is reported as a walled enclosure of good size, still standing, the name of its location, however, was not recalled. Another one of small size and forgotten name once graced Kanaio, Honauula, of which nothing now remains.

In the Kula section of Makawao the following list of *heiaus* was gathered from the old residents, thanks to the interested cooperation of Dr. C. P. Durney of this place, a few of which were visited:

Pauhu, at Waohuli, whose ruins on a knoll adjoining the road showed it to be 60 x 66 feet in size, with two division

lines therein. Kaimupeelua was a smaller one in the same vicinity. At Omaopio was reported two of large size, viz. Mahia, and Kaunuopahu, and another of medium size named Poonahoahoa, stood near the upper road. One called Mana, in the same section of country, of large size and platform character, also in ruins, was found to be now used as a burial place, though in a cactus field. Nininiwai, at Pulehu, was another, reported to be a *heiau* of medium size, still standing. This statement I find, as a rule, requires the qualification, "as is".

Reaching the Wailuku section little that is new was gathered of a definite character, and much of what I have from early history is unknown to the old residents. Two *heiaus* were reported as at Waikapu, formerly, one below the road abreast of T. Everett's, of large size, and one below the Catholic church, a small structure working probably in conjunction with the larger one. Portions of the large one was said to be still seen, but the small one was all destroyed. The names of these were forgotten. Unfortunately no evidence was found in confirmation of this report, nor any one who had knowledge thereof. The same relates to an alleged *heiau*, each, formerly at Puuhele, at Maalaea, at Kihei and at Kalepolepo, of small size, and a larger one at Kulaihakoko, but no one else seems to have heard of them.

The list of Wailuku's *heiaus* is large, several of which occupy a prominent place in Maui's political history, as shown in the ANNUAL for 1909. It is to be regretted that willful destruction by the authorities for road work is hastening the effect of time to obliterate what few were then reported as still to be seen. The corrected list, and their locations so far as identified, as also those of Waihee, are as follows:

Papanene, at Kapukaulua, Puunene.

Malaehaakoa, at Paukukalo, near the shore.

Pihana, at end of sand ridge, Wailuku.

Halekii, some 300 feet N. E. of Pihana.

Kaluli, at Puuohala, between Wailuku and Waihee.

Waikamakeha, not located.

- Pohakuokauhi, at Kulua, adjoining the government school.
- Lelemako, at Kiiwela.
- Leleahena, not identified.
- Kawelowelo, not identified.
- Manene, not identified.
- Kaulupala, at Paaloa, small, torn down in the time of Kaahumanu.
- Malena, not located.
- Keahuku, or Keahua, destroyed.
- Olokua, not located.
- Olopio, said to be one of the Iao heiaus.
- Palamaihiki, site of Kaanapu's house; outlines of good size.
- Malumaluakua, at Waiehu, said to be still standing.
- Kuemanu in Waihee, near stream, now a house site.
- Kealakaihonua, at Kapokea, near the beach, Waihee.
- Ooolokalani, not located.
- Koihale, a medium-sized heiau near the shore at Kapoku.
- Wawaekanaka, at Puhaeuolu, long ago demolished, said to obtain its name from a stone of the temple having the impress of a man's foot.
- Kukupuka, the place of refuge of West Maui.
- Another, name unknown, at Kamahoe, Waihee, said to be of good size.

At Puaanui, near the site of the present Wailuku mill, was where the victims for sacrifice were kept, in the time of Kahekili.

A singular instance of deep-seated Hawaiian superstition was met with at Wailuku in conference with an old native, said to be well posted on the *heiaus* of the locality, but who utterly refused to give any information to aid in locating or identifying any of the several ancient temples I named, stating that his grandfather had enjoined strict secrecy upon him. As he valued long life he was not to speak of, nor reveal these sacred places. He professed regret at not being able to serve me, and while disposed to talk freely on general matters, when I sought to sandwich in a query on the matter in hand he became as dumb as an oyster.

Of other parts of Maui the following additions are gathered:

At Keanae, Kukuiopuni (not Kuikuiaupuni as formerly listed), was a sacrificial *heiau* of large size, of platform char-

acter, with entry way, located at Puuwalu adjoining Waiheanui, the foundation of which only remain. Kanekauolono, on land of same name, was a small *heiau* near the shore, now destroyed, also one called Lalaola, on land of same name.

Poohoolewa, at Halehaku, Huelo, was a flat platform *heiau*, built up some ten feet from the ground in rounded form, of about 100 feet across. Of late years it has been used as a house site.

Since the foregoing was in type the following additions come to hand through the kind aid of Dr. R. C. Lichtenfels of Hana, from his recent visit to Nahiku. Particulars as to size, class and condition may be gathered later:

Kahiwamua located at Kukui.

Kaluakelea located at Honolulunui.

Haleaka located at Makepipi.

Olelokaua and Halekini at Puumaila, all in the Nahiku section, and two at Honomaile known as Piihale and Panauka.

Summarizing the foregoing for net results brings the list of Maui's *heiaus* and *heiau* sites up to eighty-five, with three famed places connected therewith, though of this total number there are seven which as yet lack confirmation. The former published list showed but thirty-nine, which this personal visit required to be corrected to thirty-six.

Should a younger enthusiast on the subject make a like investigation of the western end of the island, from Kaanapali around to Waihee, a section not yet represented, and the Koolau district only partially so, the total list of *heiaus* for Maui would likely be found to exceed one hundred.

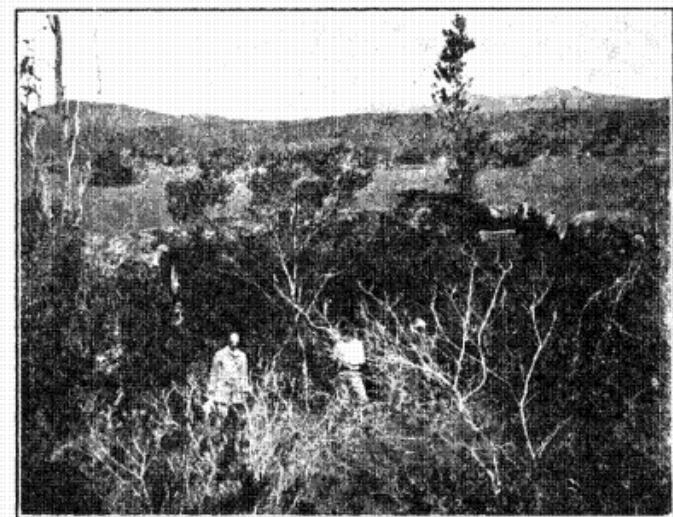
For this satisfactory result I am greatly indebted to the late George Cooper of Hana, John Fassoth and J. Kanamu of Kipahulu, the Marciels of Kaupo, Dr. C. P. Durney of the Kula Sanitarium, and Judge Kalua and J. N. K. Keola of Wailuku, for their valued cooperation.

## AHUA A UMI

BY ALBERT S. BAKER, M. A., M. D., B. D.

THE AHUA or Stone-piles of Umi around the *Heiau* or Temple of Umi are among the most interesting relics of ancient times. The temple is located on the great plain between the mountains on Hawaii. It is on the mountain part of Keauhou 2, in Kona, the property of the Bishop Estate.

One can reach the temple by a fourteen mile journey from Holualoa up the old Judd trail, or by an eighteen or twenty mile trip from Kealakekua, via Pumlehua and Kanahaha. It is magnificently located, being about two miles short of the end of the Judd trail and perhaps a quarter of a mile south of it,



WAIKULUKULU CAVE.

though in plain sight from the trail. It is on the slope of Hualalai, at between 4,500 and 5,000 feet elevation, with Mauna Kea and Mauna Loa towering, snow clad, much farther away. The

great plain between the mountains is a sparsely wooded and open country, slightly rolling, with a gravel floor near Umi's temple, and has clear, bracing air. On the journey to the temple many sky-larks are singing, plover rise frequently, occasional quail are seen, and a few crows and owls may be noticed. Dandelions are bright, and a lunch may be made of thimbleberries, ohelos, and prickly pears, while water will be found at Waikulukulu, the Cave of Dropping Water, three-fourths of a

mile up the slope from the temple, and a half-mile to the north of the Judd trail.

Waikulukulu is an interesting cave of the usual lava tunnel type, through which one may go for a considerable distance up the mountain, with occasional openings where the roof has dropped in. The water trickling from the short lava stalactites near the entrance, seems to be perennial. There appears to be a water-pipe running up one side of the cave, the illusion being helped by our seeing the cemented area on the floor put there by some of the cattlemen, but the pipe turns out to be a freak of nature in lava, only. Hualalai has an entirely new aspect as seen over the entrance to this cave, or from the nearby temple.

It is a great pity that some fifty years or so ago the temple of Umi was made into a goat corral, as shown by the barred lines in the plan. Walls seven and eight feet high were built and guiding fences erected, with stones from the old walls or from the stone-piles. The old *heiau* walls were fallen and the stone-piles more or less broken even then, no doubt, but not to be compared with the present condition.

Umi became king of Hawaii about the year 1500, and established his court in Kona. On one occasion he is said to have collected all the people of Hawaii at a small plain between the cones on the inner side of Hualalai, to number them, and this is called the Plain of Numbering to this day, by the older Hawaiians. Two small hills are said to have been the seats of the king and queen, with their retainers, while the census was being taken. Later all the people went down on the plain, where each deposited a stone, the strongest the largest, making huge stone-pile memorials around the *heiau*, one for each district and on the sides toward the districts. Thus the piles showed the relative size of the population of the districts.

Before describing the Ahua a Umi as it is today, it will be well to look at some of the Histories. Ellis' "Narrative of a Tour Through Hawaii," in 1823, mentions the place, but

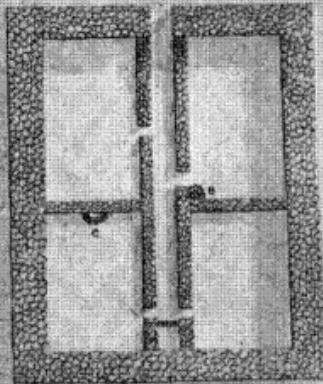
does not seem to have visited it. He says that there are six districts represented, probably having been told that each district had a stone-pile and counting the Kohalas and Konas each one. He says, "Kona is the most populous of the six great divisions of Hawaii," in this statement agreeing with present tradition which makes the Kona piles largest, with the Kohalas next.

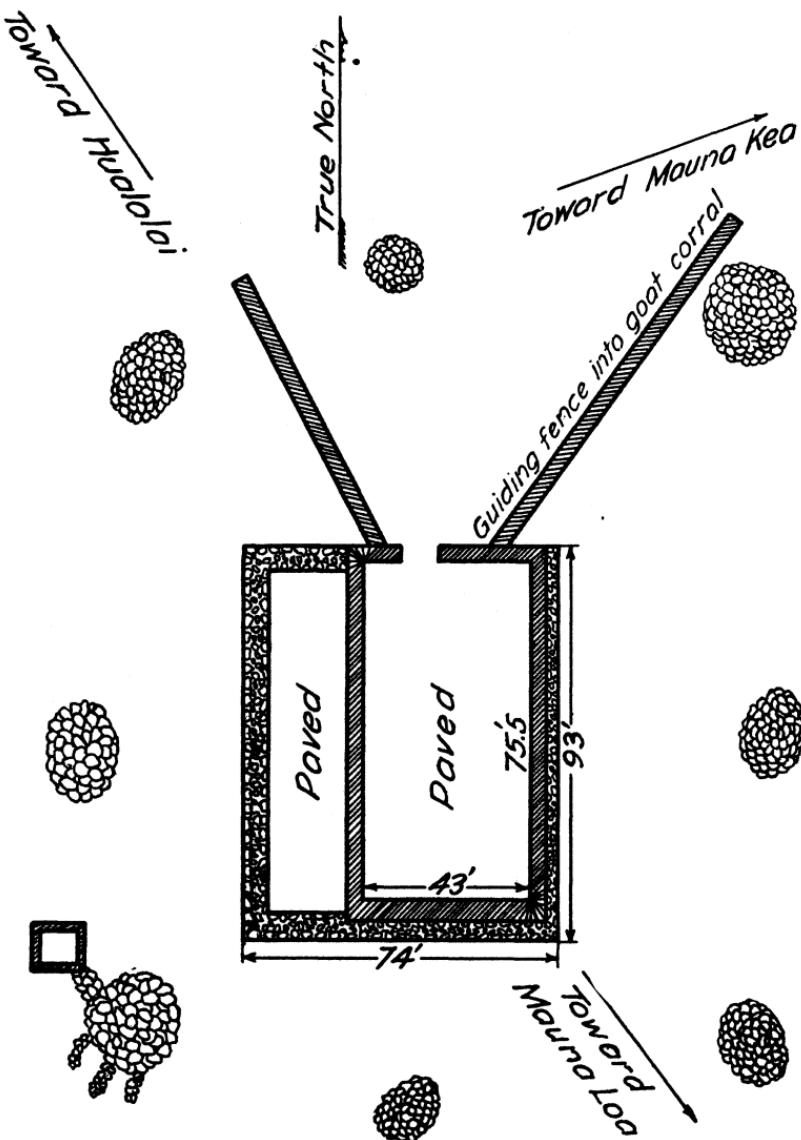
Alexander, on page 97 of his History, makes a mistake harder to understand, for he says that there are six pyramids, fifteen or twenty feet high, one for each district, and another for Umi himself. Possibly he or his informant overlooked the eighth pyramid, since it is now the smallest of all, in the entrance to the goat corral, and somewhat overgrown with wild stuff. But it is still large around and several feet high, and would not have been built in later times in the middle of the goat-run but rather would have been removed as an obstacle. Alexander probably followed Ellis in thinking of six districts, and had to account for the seventh pyramid by giving it to Umi himself. Miss M. C. Alexander, in her "Story of Hawaii", page 61, probably follows her father in mentioning seven piles of stones, "representing the six districts and Umi's court."

Bingham, however, is correct. In his "Sandwich Islands," pages 396 and 7, he describes a call he made at this place in 1830, on his way from Waimea to Kealakekua, seven years after Ellis' tour of Hawaii. He evidently did not know the history of this place, but he describes it well, though his measurements were probably only estimates. Bingham locates it as some twenty miles from Kealakekua Bay. He says that the main structure is a square, 100 feet on a side, with walls eight feet high and four feet thick. A doorway was in the middle of the north wall, with an aisle from the door to the opposite wall. The walls of this aisle were about one and a half feet high and thick, and similar walls made three apartments of each side. Around this structure and ten to twenty feet away were *eight* pyramids, about twelve feet in diameter and twelve



TEMPLE OF KAILI  
ISLAND OF HAWAII.

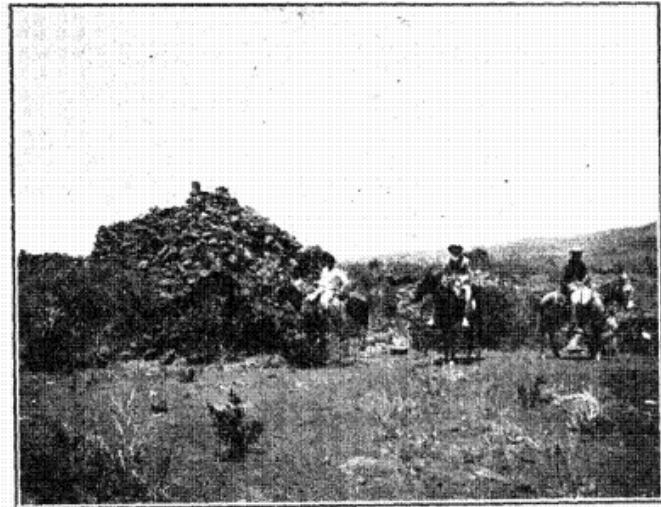




ROUGH PLAN OF AHUUMI OF TODAY.

to fifteen feet high. Connected with the southwest pyramidal pile was a small inclosure or court.

The present goat corral seems to be built partly on the old walls and partly within them, the west wall being a dozen feet within the limits of the ancient inclosure. The inner measurements of the goat corral are  $43\frac{1}{2}$  by  $75\frac{1}{2}$  feet. The ancient structure seems to have been about 74 by 93 feet outside measurement, though we could not be sure of the ancient corners because of the fallen condition of the walls. The walls are low and tumbled, outside the goat corral, and at the west by themselves, but seem to have been seven feet wide near the ground. The entire ancient inclosure is paved, but with no indication of interior walls. The door is not in the middle of the north wall of the goat cor-



N. E. STONE PILE.

ral, but where it would be in the middle of the ancient structure, as may be seen by the plan, and as Bingham locates it. The stone-piles are eight, roughly pointing toward the eight districts, being somewhat regularly placed off each corner and at the middle of each side, though at irregular distances from the center. Bingham evidently guessed at the distances, for our measurements varied from thirty feet to seventy feet, from the *heiau*. The northeast or Hamakua pile (see cut) is the largest now, being some twenty-four feet in diameter and twelve feet high, were solid, with stones heaped in the middle some three

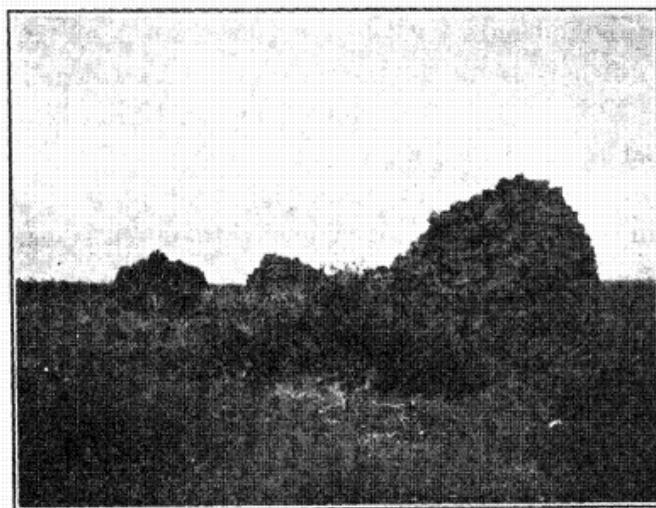
feet more. North Kohala, at the north, is the smallest today, having probably gone into fences, and North Kona is next smallest. South Kona still shows the small inclosure mentioned by Bingham, as seen on the plan.

Wilkes (U. S. Exploring Expedition, made in 1840 and 1841, Vol. IV, p. 100) undoubtedly gives the true measurements and elevation, though I have not heard his historical explanation elsewhere, and the location is very near Hualalai compared with the other two mountains. Wilkes says, "After a day's travel they reached the site of the ancient temple of Kaili. These ruins lie about equally distant from three mountains, Mauna Kea, Mauna Loa and Hualalai. This temple is said to have been built by Umi, who with his wife Papa, is supposed to have inhabited it when he was king of the island. The three northern pyramids forming the front were originally erected by Umi, to represent the districts of the island he then governed; and as he conquered other districts, he obliged each of them to build a pyramid on the side of the temple. This temple is represented in the adjoining plate. The main building (A) is ninety-two feet long, by seventy-one feet ten inches wide; the walls are six feet nine inches high, seven feet thick at the top, and nearly perpendicular; the partition walls are three feet high; (B) and (C) are said to have been pedestals for idols; (D), (E), and (F), are the pyramids built by Umi, eighteen feet high; (G) is the residence of Kaili's wife, Papa, also built by Umi (the small inclosure by the southwest stone-pile). The five remaining pyramids are those erected by the conquered districts. All these are built of compact blocks of lava, laid without cement. The building is said to have formerly been covered with idols, and offerings were required to be brought from a great distance, consisting generally of provisions. There are now no traces left of these idols. The situation of the temple is at an elevation of 5000 feet above the sea."

It seems best to leave my plan and investigations as I found

them before seeing Wilkes' account and plan, adding the following explanation. Wilkes' plan is apparently as much conventionalized for his day as is mine for today, as shown by the broken condition of the stone-piles in his picture. I made circles on my plan and I have mentioned diameters, as did Bingham, though speaking of pyramids, because the piles are so broken now that only here and there is there any trace of a corner, though doubtless they were all more or less of a pyramidal form originally. Some of the strange low walls running from the southwest stone-pile, in addition to the small

inclosure, still show as in Wilkes' plan, but I had supposed them to be too modern even to mention. Wilkes' plan shows but two apartments either side of the central aisle, where Bingham



EAST STONE PILES.

found three.

Wilkes calls this the temple of Kaili, which Mr. Thrum considers a name given to it from the god Kukailimoku, inherited by Umi from royal ancestors by whom it was referred to as Kaili. This famous war god finally passed down to Kamehameha. Wilkes' references to Papa are probably mistakes,\* Papa being the wife of Wakea and not of Kaili. The six known wives of Umi were: Akahiakuleana, Pinea, Kapukini, Piikea of Maui, Mokuna Hualeiakea, and Ohenahenalani.

\* An outside apartment known as Hale o Papa was essential to all well-appointed sacrificial *heiaus*.—[Ed.]

Umi is said to have built a road from this place to Kau, and in South Kona, on the flow which comes down just north of Miss Paris' home on the site of Kapiolani's stone house, and about a dozen miles above, is still to be seen a trail of ancient stepping-stones called Umi's Road. Other remains of his day are found in the adze-smoothed hewn stones from the *heiaus* about Kailua. These may be the stones referred to by Kamakau. "When he (Umi) became very old the people of Hawaii hewed stones for a tomb for his body, for he had ordered his sons and daughters and the chiefs and people all over Hawaii and Maui to hew oblong squared stones a fathom or more in length, a yard wide and half a yard deep. Ala was the stone hewed, a stone which is found in the cave of Umi-a-Liloa, in Keopu, Kailua. \* \* \* \* \* The stone tomb of Umi-a-Liloa was not completed when he died at Kailua, Hawaii."

The tablet in the missionary memorial arch at Kailua church, erected in 1910, is set in half of one of these old stones, the other half being the keystone of the arch.

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Special requests have been made for the continuance of the papers on "Honolulu Sixty Years Ago," being the editor's recollections of this sea-port town and its people upon his arrival at that important period, which appeared in the ANNUALS for 1914 and 1915. The writer hopes to respond to this compliment by taking up these reminiscences in our next issue. The article in last number entitled "Social and Civic Hawaii in the Early Fifties", being a narration of conditions at the close of the reign of Kamehameha III. by a summary of the historic events leading thereto presents a convenient starting point for a new series of the personal reminiscences. It may not be of sufficient interest for these to be given in unbroken yearly order, but rather in consecutiveness of leading events of the times.

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OWING to the sale of the Waikiki Church premises for the extension of the Moana Hotel accessories, some fifty or more bodies which had been interred in its grounds were exhumed and removed to the cemetery of the mother church, Kawaiahao.

# HAWAIIAN VOLCANOES IN 1916

BY T. A. JAGGAR, JR.

THE past year has been eventful in the annals of Kilauea and Mauna Loa volcanoes, for reasons concerning human progress in making these wonders more accessible, and also because of mighty events in the process of Nature's fire-building.

Two important items of progress have been the construction of a new trail along the northeast line of cones to the summit of Mauna Loa and the establishment by the United States government of an "Hawaii National Park", embracing Haleakala, Kilauea and Mokuaweoweo.

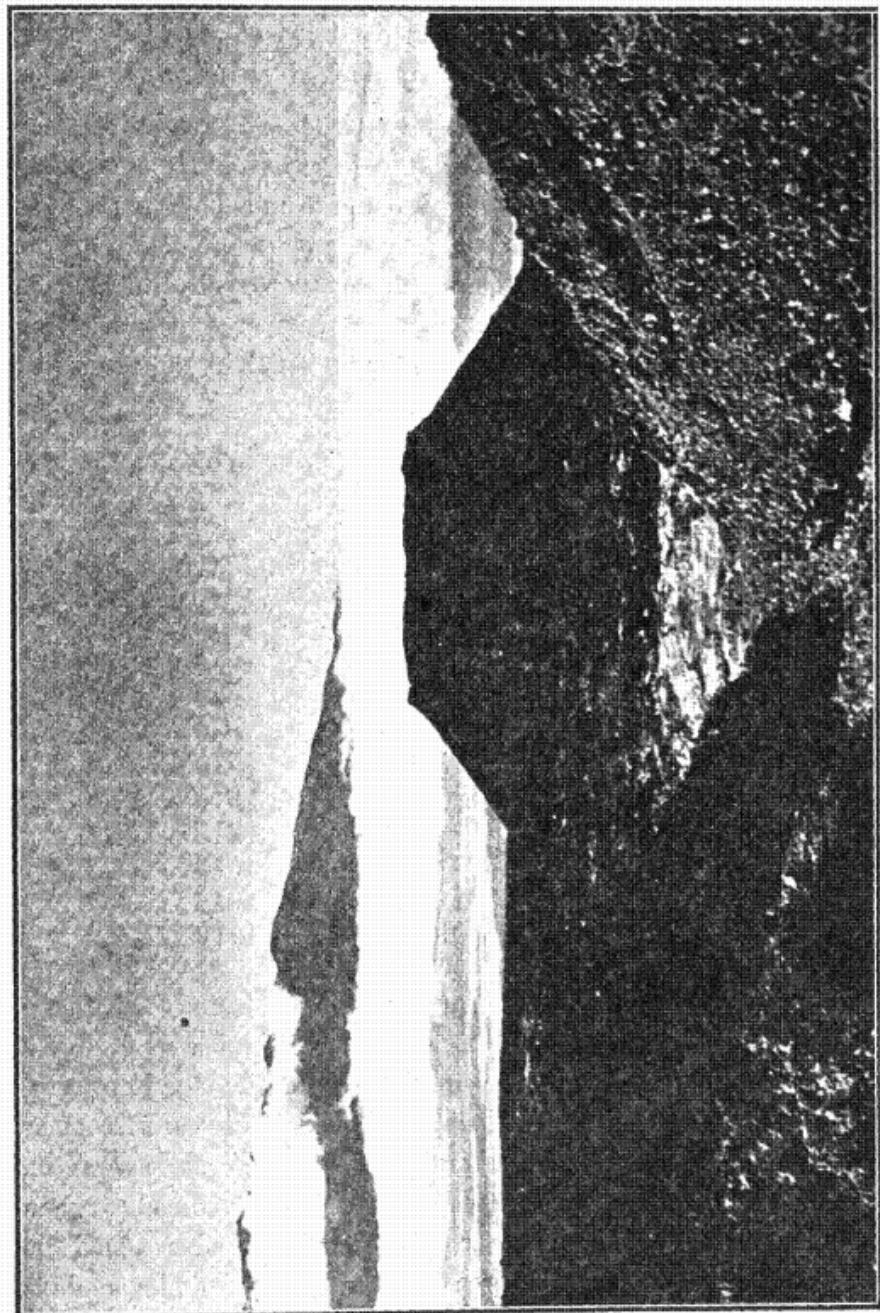
The trail was built by coöperation between a company of the 25th Infantry of the United States army under Captain Bates, and the Hawaii Publicity Commission of Hilo. The work by the soldiers was done in the autumn of 1915, leave being granted them for about two months to camp near Kilauea, and picked squads worked on the mountain, the trail passing through the beautiful wooded lands of Ohaika and then following *pahoehoe* lava mostly, with stretches of rough *aa*, to the barren desert of fissure eruptions at Puu Ulaula, the "Red Cone". This cone, 9,906 feet above sea-level, is plainly seen on the sky-line from Volcano House, as the largest of a row of eminences extending from the wooded cone Kulani toward the summit of Mauna Loa. The way as far as the Red Cone is a plainly marked good bridle-path, eight hours' riding from Volcano House.

From the Red Cone upward the trail is marked with signal rods and stone-heaps to the north end of Mokuaweoweo, the summit crater of the volcano. As yet it is suitable for walking only and not for animals. It is a stiff climb of from four to five hours from the Red Cone to the summit. The trail passes through the maze of cracks and cones at the sources of the great northern lava flows, many of which have poured

forth during the nineteenth century, and follows, not a ridge line, but a wide zone of rifts heading west-southwest to the summit crater, this zone having a width to the northwest measured in miles.

One passes great split cones, hot steaming cracks, profound pits and crevasses, and the pumice and lava slopes and cavern linings are of every possible amazing color, scarlet, orange, coffee, chocolate, black, white and all shades of tan. Under foot the ground varies, with some good stretches of hard *pahoehoe*, and much crusty, brittle *pahoehoe* which is apt to collapse in unpleasant fashion. The illustration shows a great black pumice cone, fully one hundred and fifty feet high, lying to the west of Puu Ulaula, and from it extends a chasm down the mountain to the northwest with lava heapings on both sides. The view toward Mauna Kea is majestic, and for many months of the year this desert at over 10,000 feet elevation above sea-level has a climate as crisp and dry as Nevada, with glaring sunshine, low humidity and nightly frosts. Rice and biscuits left open on a table in the wooden camp at Puu Ulaula in December, were found there by the writer July 1 following, entirely unaffected by moisture, mildew or insects. In September, however, the weather encountered by an Observatory party was misty.

The national park is still in its formative stage, but the President has signed the Act of Congress creating it. It consists of a proposed area of 75,295 acres, about four-ninths of which is public land, and includes a Mauna Loa tract of 17,920 acres, a Kilauea tract of 35,865 acres, a roadway tract connecting these two of 360 acres, and a Haleakala tract on Maui of 21,150 acres. Negotiations to acquire the private lands within the approved areas are now in progress between the Secretary of the Interior and the estates owning these lands. The bill creating the park provides that no appropriation for its maintenance will be made until proper easements and rights of way in the matter of the private lands have been granted by the owners.



BLACK CONE AND DISTANT MAUNA KEA IN THE CLOUDS, NEAR THE NEW TRAIL, 10,000 FEET UP MAUNA LOA ON ITS NORTHEAST SLOPE. Photo by T. A. Jaggar June 30, 1916.

The great volcanic events of the year have been the eruption of Mauna Loa with lava flows from its south flank, and a tremendous collapse of the bottom of the lava pit of Kilauea, followed by rapid recovery and prolonged rising of the lava.

The activity of Kilauea Volcano in 1916 showed in general a rising column of lava in the fire pit of Halemaumau, with a spectacular interruption on June 5 and 6 when the lava sank four hundred feet in two days, just at the end of the eruption of Mauna Loa. Immediately thereafter the lava in the Kilauea pit recovered and up to November 1 it was rising rapidly, with the exception of a stagnant spell in the month of September.

The movement of the Kilauea lava column by months was as follows:

Highest level, below rim of pit,	November,	1915.....	440	feet
" " "	December,	1915.....	438	"
" " "	January,	1916.....	435	"
" " "	February,	1916.....	460	"
" " "	March,	1916.....	381	"
" " "	April,	1916.....	321	"
" " "	May,	1916.....	265	"
Lowest "	June,	1916.....	700	"
Highest "	July,	1916.....	450	"
" " "	August,	1916.....	329	"
" " "	September,	1916.....	309	"
" " "	October,	1916.....	225	"

Summarized, this fluctuation showed a recovery of forty-five feet in the winter 1915-16 from a subsidence to a depth of 480 feet at the autumnal equinox of 1915. In February, 1916, before the vernal equinox, the lava again sank to near 480 feet, rising positively after March 1 at a rate averaging a little less than 2.5 feet per day until May 25, the day when the outpouring of lava flow on Mauna Loa had reached its culmination. The lava in Halemaumau sank for eleven days at a rate averaging about three feet per day, from a depression of 265 feet to 300 feet, when there came the eventful collapse

to the 700-foot level beginning in the early morning of June 5. During June there was recovery of about 150 feet of height, in July another 100 feet, in August 121 feet, in September (equinox) only twenty feet, and in October eighty-four feet, so that on October 26 the lava lake was only 228 feet down, and rapid rising was going on at rates varying from two to five feet per day.

It will be observed that this record shows lag or actual subsidence near the equinoxes with recovery thereafter. This has been the rule since the Observatory was established in January, 1912. It shows further that slow rising was in progress in 1915, that this rising speeded up during three months culminating in the climax of the Mauna Loa eruption; that subsidence in Kilauea accompanied the subsidence in Mauna Loa; that this Kilauea subsidence ended in a remarkable collapse within a week of the cessation of the Mauna Loa activity, and that strong rising of Kilauea lava was resumed thereafter for three months at the extraordinary average rate of nearly 4.6 feet per day until August 25. These facts so arrest the attention of a student of volcanoes, that he cannot but suspect an underground connection whereby Kilauea acted as a pressure gauge adjacent to the rising larger gas-lava column of Mauna Loa. When the Mauna Loa column rose inside the mountain from March to May and escaped, the Kilauea gas-pressure gauge rose likewise. When the lava and gas poured out in floods from the Mauna Loa rifts and exhausted the accumulation of these fluids, which had been growing since the premonitory summit outbreak of Mauna Loa in December, 1914, Kilauea showed the release of pressure by sinking slowly. When the full effect of the gas discharge from Mauna Loa and the rapid sinking of the foam column there, after the eruption, reached the deep junction point where the Kilauea conduit forks off, far underground, the Kilauea column instantly sank away in order to compensate the loss by explosion and outflow on the Mauna Loa side of the system. This was the great Kilauea subsidence of June 5 and 6. The solidified



THE LAVA LAKE AND CRAGS IN HALEMAUMAU PIT, KILAUEA VOLCANO, LOOKING WEST.  
Photo by T. A. Jaggar Oct. 3, 1916.

lava in the Mauna Loa vent, and the huge mass of Mauna Loa compressing the relieved rifts there, sealed securely the orifices in that direction, so that the lava, again foaming up to a certain height impelled by the ever-rising hot gases below, found less resistance in the Halemaumau conduit, and proceeded to rise and inaugurate a new epoch of accumulation. This is a sketch of a possible mechanism imagined in accordance with the observed facts. It will be seen that the conception of rising lava as a foam of molten glass impelled by gas makes light of the old difficulty of a supposed hydrostatic connection between Mauna Loa and Kilauea. Molten lava bubbling with hot gas does not find its level like water. It frequently rises and falls to different levels in different orifices within the same pit.

The cataclysm of June 5 at Halemaumau began at 8 a. m. when the circular lava lake with two islands was within an inner bench formed by overflows. Looking down from the south I saw that the lake was at least thirty feet lower than on the previous day, and its surface streaming was very swift eastward toward the "Old Faithful" fountain. Then the eastern island began to emerge from the liquid and topple over to the north on its pedestal and it became clear that rapid sinking was in progress. The south bench cracked and crumbled in avalanches. The tumble at the base of the bench would occasionally topple great slabs into the fiery flood, the east island showed an underpinning shaped like a whaleback boat, and from 9 a. m. to 2 p. m. there was a succession of terrific falls of the inner bench piecemeal, sending up highly colored avalanche clouds, so as to produce one of the most awe-inspiring volcanic spectacles ever seen. With it all there was little smoke, fine sunlight and only slight quaking of the upper rim of the pit. From 8 to 11 a. m. the lake sank over fifty feet and by 3 p. m. it had dropped 200 feet and was undermining the base of the older walls. By noon next day it had dropped in all 333 feet, and sank some thirty feet farther before recovery. All the newer benches had tumbled by nightfall of the

5th, including remnants of the high bench of 1912. Portions of the old ragged northeast shelf of 1894 fell away. Striking features of the display were the red hot debris slopes made by the inner benches, which fell bodily inward like great slabs of incandescent cheese, glowing cherry red, and when these gigantic falls would strike the dwindling lava lake, the hot

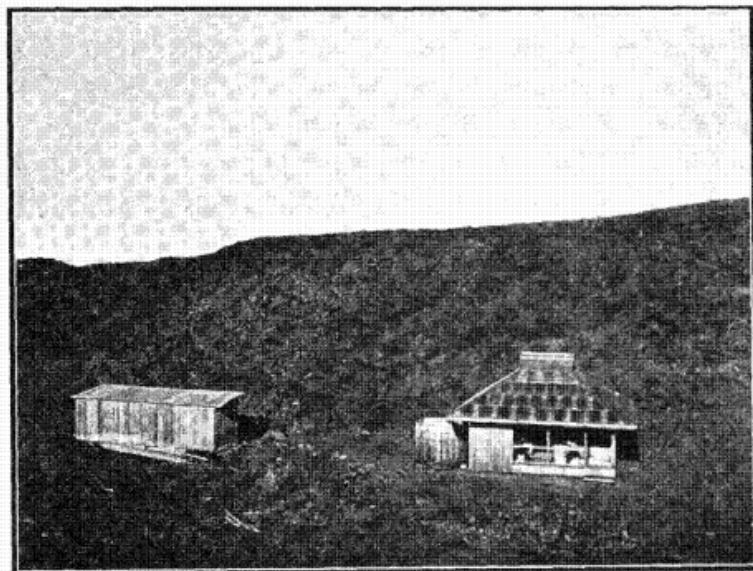


A lava "toe" on the Kilauea floor near Halemaumau, which lifted its tip and solidified so. Scale on the left is six inches long. Photo by T. A. Jaggar.

melt would splash far up the opposite side of the pit and blacken and blister over the talus there, rushing back in a return wave and doing the same on the near slope. A lava spring was revealed bubbling up under the western wall where the lake had sunk over a hundred feet and for hours this played merrily like an artesian flow, sending a small torrent down the slope into the lake beneath. The islands sank with the lake but were eventually swallowed up in the slopes of rock fragments. The final result of the subsidence was a pit

700 feet deep with walls practically vertical on all sides, a circle of rather flat talus slopes far below, and a large oval central lava lake rising amidst the debris. This lake on June 9 measured 500 by 200 feet. Throughout the sinking period there were swarms of local earthquake shocks recorded by the seismographs.

The outbreak of Mauna Loa was expected, as the summit eruption of 1914 was considered premonitory of a coming



The new camp in the Red Cone or Puu Ula-ula, about 10,000 feet above sea-level on Mauna Loa. Photo by H. O. Wood in September, 1916.

lava flow. On May 19, 1916, at 7 a. m., there was a most beautiful vapor jet which rose above the southwest rift of Mauna Loa from an elevation of about 11,000 feet and shot 20,000 feet into the clear morning air. At 11 p. m. on May 21 lava welled up this Kahuku rift zone above Puu Keokeo about 7000 feet above sea-level and poured east and west. The flows straddled the 1907 outpourings to the north and west of them, sending narrow tongues into South Kona and a wider flood eastward into Kahuku. None of the tongues crossed the

road. The lava was a brittle, gas-charged *pahoehoe* above and *aa* below. Somewhat less was poured out than in 1907. Local earthquakes waxed and waned with the eruption.

The flows ceased about May 31, and so brought to a close the eruptive epoch 1914-16, about a decade after the last eruptive epoch of Mauna Loa 1903-7. Presumably we are now entering upon a repose period of Mauna Loa and an active period of Kilauea, similar to the period 1908-12. There seems to be tendency to irregular alternation between the activities of the two volcanoes, as would be expected in the pressure-gauge analogy described earlier in this article. It is believed that after a few decades of work by the Hawaiian Volcano Observatory, if that institution can be put upon a permanent footing as an observing station, we shall be able to discover what are the principal controlling forces which govern the more or less rhythmic outbreaks of our volcanoes.

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## HAWAIIAN PERSONAL NAMES

BY J. M. LYDGATE.

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OUR civilized modern system of personal names is a sort of petrified forest, badly worn by time and the elements with only the stumps and broken branches left. A primitive nomenclature, however, like the Hawaiian, is such a forest in the life, vigorous and green; there are no dead branches, scarcely any dead leaves even, so fresh and vernal is the growth. And so, because of this fresh vitality, both for its own sake, and because of the light that it may reflect back on our own decayed nomenclature, it may be interesting to examine it briefly, and make a few simple comparisons.

Whatever it may have been once, the modern personal name has lost all personal quality. John Smith, or William Jackson, or Levi Goldstein, have no exclusive personal claim to these names, either given or family. The surnames, Smith or Jackson or Goldstein, come down the family lines through the centuries it may be, and these last belated holders of them

must share these names with thousands before them, it may be. There is nothing about these names that they can really call their own. They are only a kind of family old clothes, hand-me-downs, very much worn, and sometimes very seedy and very shabby. And when it comes to the given names, John or William or Levi, still less can they make good any exclusive title; the world has been full of Johns and Williams and Levis since the beginning of time.

The civilized mother, when it comes to the choice of a name for her child, is led up, as it were, to a sort of name repository in which, on the front row, there is a well-worn collection of familiar names, William, Henry, James, John, Peter, etc. "These are good and worthy names, well proven by use,—how would one of these suit you?" She falters in an undertone that she would like something a little less worn, something a little more original. So, more or less reluctantly, from the dust in the rear, Harvey, or Eldridge, or Sanford is brought out for consideration. And after some hesitation she settles on Sanford, because she thinks it makes a rhythmic combination with Sommerfield, which is the child's Family name. But really, as to why it should be either Sanford or Sommerfield, she can't tell you for the life of her, except that it had to be something!

Now it is very different with the Hawaiian mother. She is absolutely untrammeled in her choice. She can ransack the heavens above, the earth beneath, and the waters under the earth, and out of this vast repertoire she can select a name that will suit her, a name that will mean something, and have some character and vitality of its own. She would resent for her children the ready-made hand-me-downs and misfits that we tolerate for ours; she will have her own names made to order, and to suit her, and if they are "*ano e*"—different—that is all right; that's what she wants. And it would seem to any sane and uncultured mind that she is right.

Naturally this results in originality and individuality, where in our own names we find monotony and dry rot.

An examination of 500 names, taken at random from the Yale catalogue shows eight Clarkes, eight Smiths, five Williams, and two each of eight or ten other familiar names. It reveals also 37 Williams, 30 Charles, 25 Johns, 18 Edwards and 7 James, with a number of others frequently repeated.

A similar examination of 500 names taken at random from the Land Commission Award Book shows only three names that recur three times, viz., Naiwi, Kowelo and Puhi, and some twenty others that recur twice. Furthermore the Yale names are more or less linguistically mixed, with French, German and Scandinavian strains, tending, of course, to give much greater variety, whereas the Land Commission names are narrowly and exclusively Hawaiian, and therefore more likely to repeat. In a word, the facts tend to confirm the theory.

By way of illustration, I offer the following examples of original names: The First-Born-Sure, Salt-for-the-Big-Fish, The-Place-of-Flies, Chicken-Feed, The-Breath-of-Fragrance, The-Prince-with-the-Big-Mouth, The-Misty-Eyes, The-Eight-Seas, The-Man-That-Digs-the-Dirt," etc., etc.

Now, surely when an ordinary untutored Hawaiian mother sets out to ransack earth and sea and sky for the name for her child she must have some guiding impulse in her search or she would get utterly lost. Yes, she has; and it may be interesting to note some of the influences which determine in the choice of a name, where the range is so unlimited.

#### 1. ACCIDENT OF BIRTH.

This often suggests a name just when and where it is needed, so that it is no more than natural that it should be adopted unless something better appeals. Bingham tells how the Queen Mother, being confined in a dark room because of some eye trouble, gave the name "*Hale-Pouli*"—Darkened House—to her infant son, born about that time. Another child was named "*Hulu-Ili*"—Skin Brush—because the mother's skin had been painted with iodine with a small brush. One of Kamehameha's servants, in his haste to supply the water

demanded by his royal master, offered some that was not quite clean. Kamehameha noticed the defect and dashed the water back in his face, container and all, crying "*Wai-lepo-lepo*,"—Dirty water. What more fitting than that the dramatic incident should be preserved in the name of that servant's child, born about that time, who became "*Wai-lepo-lepo*."

Nor need the incident be at all closely connected with the birth. Not uncommonly any striking experience fresh in the memory of the family, or of the friends, may serve to suggest the name. One acquaintance bears the name "*Ka-Uahi-o-ka-Lua*"—The Smoke of the Pit—suggested by a visit to the Volcano, on the part of a near relative at a time when smoke was the most impressive experience. Another bears the name "*Ka-Luna-Kanawai*"—The Judge—because of notable kindness shown by Judge Fornander to a man who came before him on a charge of burning a store at Kaluaaha on Molokai. The charge was not substantiated, and the man was discharged with kindly expressions of sympathy on the part of the genial old Judge. By way of grateful appreciation the next baby was christened *Ka-Luna-Kanawai*.

## 2. MEMORIAL OF SOME HISTORIC EVENT.

When *The Blonde* brought from England the remains of Liholiho and his wife, and the two coffins were landed in Honolulu with much solemn pomp and ceremony, it made a great impression on the simple Hawaiians, and for some time "*Na-Pahu-Elua*"—The Two Coffins—was a familiar name for children of either sex.

When Debora Kapule, relict of Ka-umu-alii and Governess of Kauai, came to the close of her life, she preferred the request that she should not be buried in the common red soil of Waimea, but in the river gravel, in a *Lua-ili-ili*"—a Pebble Grave—and this so struck the Hawaiian fancy that it became a familiar name for children in that region.

### 3. CONFERRED AS A FAVOR OR DISTINCTION.

Somewhat as a modern notable may give you his picture or his autograph as evidence of appreciation, so the primitive notable often bestowed a name.

Kalakaua, as is well known, was reactionary in his sympathies, and was well versed in all these primitive customs and conditions. On one occasion, making the tour of Hawaii, he spent a day or two in Kau, as the guest of a local magnate who was an experienced billiard player. Kalakaua was an adept at the game, and considered himself an expert whom it was hard to beat, but this opponent did it. With gracious enthusiasm Kalakaua exclaimed, "I pronounce you the Prince of Billiard Players; that shall be your Family Name!" So when the little grandchild came, who should be the heir of the estates, he was formally christened "*Ke-Alii-Pahu-Pahu*"—The Prince of Billiard Players.

On another occasion, when this same royal guest came to Kauai, he and his party made the tour of the island in brilliant red sweaters. Taking leave of one of his generous local hosts, he conferred the name "*Ka-Huakai-Ula*"—The Tour in Red—as a special gift for the next child, who still bears it.

On the occasion of his coronation he conferred on another child of the same family, the unique designation "*Ka-Ehiku-oka-Lani*"—The Seventh of Heaven—significant of his coronation as the seventh king of Hawaii, a name still proudly cherished by the recipients.

Memorial of the death and burial of Lunalilo, Kanaina, his father, bestowed the name "*Ka-Pahu-Ahu-Ula*"—The Red-Mantled Coffin—on the child of one of their Kauai retainers, and the name remains as a family treasure to this day.

On one occasion Queen Emma, on a tour of Kauai, visited the so-called Wet Cave at Haena, which she and her party explored with the aid of flaring torches. In memory of the event she conferred on the new-born infant of her host the significant name "*Ka-Wai-Lama-Lama*"—The Torch-Lit Water.

So romantic a name might well be highly prized, even though it had not been the gift of a queen.

It may not be generally known that the trees on Punchbowl near Honolulu owe their origin to the interest and efforts of a king, Kalakaua, as is evidenced in the following name, still carried by its owner but not often exhibited in its full glory: "*Titus - Ke - Lii - Houlu - Laau - Iluna - o - Puuowaina - Ka-Mahina - o - Aperila*" — Titus the King Planting Trees Up on Punchbowl in the Month of April. The name Titus was given in memory of Titus Coan, and the rest in memory of the occasion when Kalakaua conducted a tree-planting party up onto Punchbowl. It is perhaps needless to say that this name has been very much reduced for daily use and that its owner passes as "*Houlu*."

It may be noted that these names were not conferred indiscriminately by the *aliis*,—they were pearls not lightly to be cast before swine, but were reserved as gifts of honor for the worthy, hosts and retainers, and were prized as such.

It will readily be seen how Hawaiian names may run to great length. Where a more or less complex action or condition is to be described a sentence is sometimes required to do it, and when, as in more civilized countries, an inventory of titles, real or imaginary, is required, it runs into name pretty fast. The common people must needs be content with one name, which could not well be so very long, but the Chiefs could indulge in greater extravagance in this as well as in other respects. So we find such names as that of *Kaiulani, Victoria Kawekiu Kaiulani Ka-Lani-Nui Ahi-Lapa-Lapa*; that of Kamehameha the Third, *Kauike-a-Ouli Kalei-o-Papa Kumau-o-Lani Mahina-Lani Kalani-Nui-Waiakua Keawe-awe-loa-o-ka-Lani*; and that of Kalakaua, *David Loaa-Manu Ka-Manu-Kapu Mahimi-Lani Lumu-Lani Na-ko ka Ehu-o-ka-Lani Kalakaua*.

It may be noted that the designation *Lani* which recurs so frequently in these princely names, while in a sense a name, is also a title of honor equivalent to Highness or Excellency. Hence we find it used properly only in princely names. In

more modern days it has been appropriated for common use, unduly and often without much intelligence.

Names were also given sometimes by way of deprecation, to mislead an adverse fate into relaxing a relentless persecution. In one particular case, where misfortune had followed a family through many children, the last one was named "*Lapuwale*"—Worthless—to throw dust, as it were, into the eyes of an adverse fate. In another case where the persecution had been particularly relentless the disgusting name "*Kukae*" was given, as a last resort, and with good effect apparently since the bearer still lives.

The Hawaiians made no distinction of sex in the giving of names. "*The Breath of Fragrance*" or "*The Moon Upon the Sea*" or "*The Pink Flush of Dawn*" is apt to be carried by some brawn, burly man, while a delicate, graceful girl may be "*Door Yard Rubbish*" or "*Long Crooked Back*" or "*Reckless Fast Rider*." The name gives no indication of the sex of the bearer, and in writing must be followed by the letter "*k*" for *kane*—man—or "*w*" for *wahine*—woman—which correspond to our Mr. or Mrs. and Miss. There was no distinction of title between Mrs. and Miss, Mrs. Hoapili being known, when necessary, as *Hoapili Wahine*. Generally she was known by her own personal maiden name, without any indication that she was married.

Of course it will be readily understood that all this applies to a primitive condition of things, that in its fulness is now long since a thing of the past. With eager readiness of assimilation, the Hawaiians have taken over our vices of civilization, in this as in other respects, and have discarded their own picturesque and significant nomenclature for our monotonous and meaningless one. In this, as in all else, in these islands, we must go far back from the beaten tracks to find anything primitive and truly Hawaiian.

# GAME FISHING IN HAWAIIAN WATERS

BY H. GOODING FIELD,

*Hon. Sec., Hawaii Tuna Club, Honolulu.*

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## WORLD'S RECORD BROKEN.

**H**AWAII is the leading game fish center of the world." Statement made by James W. Jump of Los Angeles, California, holder of the world's record for yellow-fin tuna at Catalina, California.

Mr. Jump broke the world's record for an afternoon's catch of game fish with regulation tackle, off Molokini Island, Maui, Territory of Hawaii, on January 31st, 1916, with two yellow-fin tuna, 70 and 62 pounds; two *ono* (a cross between the giant mackerels and the swordfish), one, 6 foot, weight 61 pounds and the other 5 foot, 42 pounds; one barracuda, 3 foot 2 inches in length, and a number of smaller game fish, including the oceanic bonito, albacore, etc.—a total afternoon's catch of over three hundred pounds of game fish.

## AN ANGLER'S PARADISE.

From an angler's standpoint, Hawaii is a veritable Paradise, as its waters teem with game fish of large size and great variety; the fish are landed with rod and reel *all the year round*. The climate is equable, and there are no sudden changes of temperature, no fogs, no disagreeable cold snaps and no intense heat.

The fish of the Hawaiian Islands were first officially recorded as early as 1782 by Broussonet from specimens obtained during Captain Cook's third voyage to the islands. In 1903, the United States Fish Commission described nine hundred and two species of fish belonging to the region of the Hawaiian Islands, including a large number of the giant mackerels, such as the swordfish, tuna, oceanic bonito and albacore. With such available and authentic records, it is surprising that Hawaii is

only now coming into its own as one of the world's greatest game fish resorts.

#### RECENT RECORD CATCHES OF GAME FISH.

Messrs. James W. Jump of Los Angeles, Fred. K. Burnham of Martinez, California—two game fishermen of international reputation—Gerrit P. Wilder, President of the Hawaii Tuna Club, and the writer, in four days during the latter part of January, 1916,—generally an off-season elsewhere—killed two yellow-fin tuna (*thunnus macropterus*), 70 and 62 pounds; one long-fin tuna (*thunnus alalunga*), 18 pounds; three dolphin (*coryphaena hippurus*), length 4 foot, weight 16 pounds; 4 foot, 6 inches, 20 pounds; and 4 foot, 3 inches, 17 pounds respectively; seven *ono* (*acanthocybium solandri*)—a cross between the giant mackerels and the swordfish and a rare fighter), one 6 foot in length, weight 61 pounds; two 5 foot, 42 pounds each; two 5 foot, 41 and 40 pounds each; 4 foot, 6 inches, weight 38 pounds and one 4 foot, 36 pounds; seven *ulua* (*carrangus* Griffith)—closely resembling a giant pampano and a very game fish—total weight 140 pounds; one *kaku* (*sphyroena snodgrassi*), length 4 foot; and a number of smaller game fish, including the oceanic bonito.

One week's fishing in February, 1916, with regulation rod and tackle in the above waters, by Messrs. Jump, Burnham and Morris of Denver, resulted in a catch of nine yellow-fin tuna; three long-fin tuna; two dolphin, and a number of barracuda. The largest of the yellow-fin tuna weighed ninety-two pounds and the smallest forty-seven pounds. During the week, seven hundred pounds of game fish were killed.

#### HAWAIIAN GAME FISH.

##### THE TUNA.

The world renowned species of game fish—the giant mackerels—such as the leaping tuna (*thunnus thynnus*); long-fin tuna (*thunnus alalonga*); and yellow-fin tuna (*thunnus macropterus*) are caught in large numbers in Hawaiian waters.

The blue and yellow-fin tuna reach a large size locally, single catches having been made over three hundred pounds in weight. The tuna are known by the Hawaiian generic name *Ahi*.

#### THE SWORDFISH.

The swordfish (*Xiphias gladius*), weighing from three to seven hundred pounds, is the *a'u* in the Hawaiian tongue. A swordfish was killed off the Puna coast, some two miles offshore on the Island of Hawaii, by Japanese trolling from their sampan with a hand line, which was cut in three parts and taken aboard the boat, which weighed over six hundred pounds, the sword measuring five feet. About the same time, a large-sized swordfish was hooked with a nine-ounce rod by one of the local anglers, off Pepeekeo, Hawaii, but the fish got away with rod and tackle after striking.

On February 3rd, 1916, a swordfish was sold in the Honolulu fishmarket which weighed seven hundred and thirty-five pounds, and whose tail measured fifty-three inches across. These fish usually travel in pairs, and are often seen close inshore in deep waters; they greatly resemble the tarpon for spectacular play after striking, making a succession of leaps in the air after they have taken the bait.

#### THE OCEANIC BONITO.

The oceanic bonito (*gymnosarda pelanis*) are very plentiful in local waters; these fish are known by the Hawaiian names of *aku* and *kawakawa* respectively.

#### THE CALIFORNIA BONITO.

In the 1903 United States Fish Commission Bulletin on the Aquatic Resources of the Hawaiian Island (p. 175), referring to the California bonito (*sarda chelensis*), it is stated that "a specimen about two feet long recently received from Honolulu belong without doubt to this species." A single catch of over two hundred of these fish was quite recently made in the Alakahiki Channel, between the Islands of Maui and Kahoolawe. The bonito is often called the humming bird of

fishes, being quick as a flash in the water, and with its many-hued and brilliant coat and markings, is a thing of rare beauty. They swim in schools of large numbers, and are one of the most highly prized of game fish.

#### THE ALBACORE.

The albacore (which in other waters is sometimes classed as the leaping tuna) is a common fish in Hawaii, and is known by the native terms *ahi* and *ahi-pa-laha*.

#### THE DOLPHIN.

Dr. Holder, in his "Fishes of the Pacific Coast," mentions that the dolphin is a fish among the very rare catches, and, so far as known, taken with rod and reel nowhere else than in the channel islands of California. The scientific name for this game fish is *coryphaena hipporus*, and the Hawaiian terms *mahimahi* and *mahihi*. In the 1903 United States Fish Commission Bulletin, the measurement of several dolphin taken in Hawaiian waters are given. These fish are numerous in local waters, and can be landed any month of the year offshore in deep water with a regulation nine-ounce rod and nine-thread line. Numerous catches of dolphin from four to five feet in length with this tackle have been recorded by the Hawaii Tuna Club this year. The dolphin is remarkable for its brilliant and changeable colors: the color of the fish in life is a dazzling silver, with yellow, green and brown spots on the lower parts. After death, only faint indications of the former colorings remain. They are exceedingly fast swimmers, keeping to the surface after striking, and are a very game fish, fighting to the finish. Were it generally known to game fishermen on the mainland that the dolphin is so plentiful in Hawaiian waters, and can be caught with light rod and tackle, there would be an exodus of anglers to Hawaii for this game fish alone.

#### THE TARPOON.

In the United States Fish Commission Bulletin, above referred to, (p. 54), under the heading of the family *Elopidas*—

the tarpons—numerous specimens were examined in Honolulu. The Commissioners state that "this is one of the greatest of game fish, in the estimation of the anglers who have had the good fortune to fish for it on the coast of Florida, and will doubtless prove one of the most interesting of Hawaiian fishes to sportsmen who visit these islands."

#### THE ONO.

The *ono* (*acanthocybium solandri*) is of a steel-blue color, and closely resembles the markings of the swordfish. This very large mackerel-like fish was said by the ancient Hawaiians to be the parent of the *opelu* (mackerel). It is a cross between the giant mackerels and the swordfish, and is particularly abundant in the deep-water channels off the island of Molokini, Maui. The *ono* is a fierce fighter, and its rushes after striking are wonderful; it is not unusual for eight hundred or a thousand feet of line to reel out before the fish can be stopped. Dean C. Worcester of the Philippines, an authority on game fishing, who has fished with the writer in Hawaiian waters, is of the opinion that the *ono* is the *tanguingi* of the Philippine waters and apparently identical with the West Indian game fish, the *potos*. Mr. Worcester once foul-hooked a fish of this species under the back fin and he was kept busy throughout the greater part of an afternoon. Some remarkable catches of the *ono* have recently been made off Molokini Island, Maui, one fish measuring 6 foot and weighing 61 pounds. In a recent four days' try-out in these waters, over two hundred pounds of *ono* were killed. With a nine-ounce rod and nine-thread line, this fish will tax all the skill of an expert angler.

#### THE ULUA.

There are nine species of the *ulua* (*carrangus* Griffith) in Hawaiian waters. This game fish is exceedingly voracious, and frequent, in large numbers, the deep waters in the island channels and close inshore off the precipitous rocky ledges. *Ulua*

have been landed weighing over one hundred pounds. The fish is the most important food fish of the South Seas, abundant in the markets and unsurpassed as the basis of fish-chowder. Pound for pound, the *ulua* is declared by anglers to be the gamest fish in any waters.

#### THE BARRACUDA.

There are twenty species of the barracuda (*sphyraenidas*) frequenting Hawaiian waters. Professor David Starr Jordan of the United States Fish Commission reported that these spike-like fishes are often of large size in the island channels of Hawaii, and are active and voracious, many of them being highly prized as food. The Hawaiian generic term for this fish is *kaku*, the smaller species being known as *kawalea*. Many catches of barracuda in local waters have been made measuring over four feet in length, with light tackle. Unlike the Florida barracuda, which is a solitary game fish, the Hawaiian species would appear to travel in schools.

#### THE FRIGATE MACKEREL.

The frigate mackerel, an abundant game fish in Hawaii, like the albacore, run in schools. It has all the colors of the rainbow and is a fast swimmer.

#### THE BLACK SEA BASS.

The black sea bass (*sterculopis gigas*) is the Hawaiian *ha-puupuu*. These fish are caught from points varying from one-half to one mile offshore. One specimen was recently marketed by the Japanese fishermen at Honolulu which weighed six hundred pounds.

#### OTHER COMMON HAWAIIAN FISH.

Other fish which are common to Hawaii are the mullet, running in great schools; the milkfish (Hawaiian *awa*); the needle-fish (*tylosurus giganteus*)—Hawaiian *ahaaha* and *auau*—very voracious, numerous examples being three feet six inches in length; the Hawaiian *wolu* (*revettusocco*), examples have been caught measuring over four feet in length and weighing

forty pounds; pampanos; mackerel scads; perch, related to the sea basses; the catalufus, a carnivorous fish, chiefly found in deep waters; snappers, Hawaiian *ukikiki*, *kalikali* and *opakapaka*, an excellent food fish, reaching a length of two feet, and is an active and voracious fish and very plentiful in Hawaiian waters.

#### FISHING COMPETITIONS.

Under the auspices of the Hawaii Tuna Club fishing competitions are held throughout the year, for which Club Buttons and prizes are awarded. Several prominent mainland anglers during the past year have won the coveted buttons. Silver cups and special awards are offered by the Club and private donors, for which a number of visiting sportsmen are competing.

At Kihei, Maui, located in the center of the lee-water Molokini game fishing grounds, club house and hotel accommodations have been provided for anglers. There is a concrete wharf, with launches and other boating facilities at this point.

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## ENGINEERING FEATURES OF THE WATER PROJECT OF THE WAIAHOLE WATER COMPANY.

AN HISTORIC PAPER READ BEFORE THE HAWAIIAN ENGINEERING  
ASSOCIATION

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BY CHAS. H. KLUEGEL,

*Member American Society of Civil Engineers*

**T**HE general plan or scheme of development adopted for the Waiahole Water Co. was that recommended by Mr. J. B. Lippincott, C. E., who made an exhaustive study of the project, going fully into the past history and study already made by Mr. J. Jorgensen and other parties, and reported to the Board of Directors of the Oahu Sugar Co., Ltd., under date of August 19, 1911.

Mr. Lippincott was assisted in this work by Mr. W. A. Wall. During the following two years, the Waiahole Water Co., Ltd., was organized, and Mr. H. K. Bishop was appointed Chief Engineer of the project in January, 1913, and the actual work of constructing the system began the month following, the work being carried out directly by the company under the direction of its Chief Engineer.

This method of performing the work was followed until October, 1913, when the remainder of the work, except the pipes across gulches, was let out to Mr. Jorgen Jorgensen, contract engineer. Mr. Bishop resigned as chief engineer at this time, and Mr. C. H. Kluegel was appointed inspecting engineer to complete the work. Later Mr. J. M. Young was appointed as consulting engineer. The work is thus divided into two stages.

#### GENERAL PLAN.

The general plan provided for collecting the water from the many streams and gulches on the windward side of Oahu by means of tunnels through the ridges or spurs, and conveying the water, after collecting, through the mountain in the main tunnel to the leeward side of the island, thence by tunnels, ditches and pipes, to the upper levels of Oahu Sugar Plantation.

The tunnels connect up the various streams on the North side, and take in the water at the adits in the gulches. There are 27 of these tunnels on the North side, varying in length from 280 feet to 2,332 feet, the aggregate length of the North side tunnels being 24,621 feet, or 4.66 miles, being in reality one continuous tunnel. The number of adits at which water is taken in is 30, the intakes being located at the most advantageous points at the streams in the gulches.

The maximum elevation at which water is taken into the tunnel is 790 feet above sea level, and the grade or slope of the North side tunnels is 1.3 feet per thousand.

The length of the main tunnel through the Koolau Ridge is 14,567 feet, or 2.76 miles, the grade or slope being 2.0 feet per thousand.

The elevation of the North portal of the main tunnel is 752 feet above sea level, and at the South portal 724 feet.

The length of the tunnels on the South side is 19,211 feet, or  $3\frac{5}{8}$  miles, this distance comprising 14 tunnels, varying in length from 346 feet to 3,329 feet.

In these tunnels the slope or grade is somewhat less, being 1.3 feet per thousand, thus delivering the water at the lower end of the South side tunnels at an elevation of 699 feet. From this point the water is conveyed by means of cement-lined open ditches, elevated concrete ditches, four steel pipes, and three redwood pipes. It is delivered to the upper boundary of Oahu plantation at an elevation of 650 feet through several distributaries, and by the main ditch, which reaches this elevation at the boundary of Honouliuli.

The water is also delivered into numerous reservoirs, especially at night, when irrigating the cane fields is inconvenient. One of the larger reservoirs, on the line of the Waikakalaua storm water ditch, has long been in use. It is called Five Finger Reservoir. Its elevation was a determining factor in establishing the grade elevation of the Waiahole conduit.

The length of open ditch between the last tunnel and the Waikakalaua gulch is 20,000 feet, or 3.79 miles. This portion of the waterway crosses three gulches, where riveted steel pipes are used, ditches being impracticable.

The first of these pipes is 78 inches in diameter, and 1,125 feet long, the maximum head being 165 feet. The second pipe is 78 inches in diameter, and 331 feet long, the maximum head being 80 feet. The third pipe, at Kipapa Gulch, is 72 inches in diameter, and 2,034 feet long, and the maximum head is 270 feet. The fourth pipe crosses Waikakalaua Gulch. It is 72 inches in diameter and 970 feet long, the maximum head being 220 feet. This pipe crosses two tracks of the Oahu Railway, passing over one track and under the other. The aggregate length of the four steel pipes is 4,460 feet to the West side of Waikakalaua Gulch.

The pipes are made of steel plates varying from  $\frac{5}{8}$ " thickness for the highest heads to  $\frac{1}{4}$ " thickness for the upper sections. The pipes are riveted together in five and one-third-foot sections. They are supported on concrete piers of varying heights, depending on the topography of the ground, and the spacing of the piers is, in general, about 26 feet, the spacing being chosen in multiples of section length.

The intakes and outlets of these pipes consist of a heavy construction of concrete, reinforced, and the intakes are provided with iron grating bars to prevent the access of floating material of any kind, and as a safety precaution in case of a person or animal accidentally falling into the ditch near the pipe.

The pipes are provided with blow-off valves at the lowest points, and with man-holes for inspection, cleaning and painting, it being recognized that to keep steel pipes of this kind in good condition requires careful and thorough painting at frequent intervals.

Provision is made by means of valves at the lowest point of the Kipapa Gulch pipe to take out water for irrigating the lands in Kipapa Gulch, and other lands lying below that level, and also for power purposes, should this latter become desirable at some future time; the water from the tail-race of the power plant being then available for irrigation after delivering up its power, the available hydraulic head at this point being 280 feet.

West of Waikakalaua Gulch, through Hoaeae and to the upper boundary of Oahu Plantation in Honouliuli, the conduit consists of 12,650 feet of cement-lined ditches, and three redwood pipes 5 feet in diameter, having an aggregate length of 2,830 feet.

For convenience in administration, the project was subdivided as follows:

North Division Tunnels.....	24,621 ft.	4.66 miles
Main Tunnel .....	14,567 "	2.76 "
South Division Tunnels.....	19,211 "	3.64 "
South Division Ditch.....	20,000 "	3.79 "
Pipes .....	7,290 "	1.38 "
Hoaeae Ditch .....	12,650 "	2.40 "
Honouliuli Ditch .....	approx. 2.	"
Distributaries .....	approx. 6.	"
Total.....		26.53 miles

not including extensions by Oahu Sugar Co.

#### ORGANIZATION.

When the work was undertaken, the time of completion was considered an important element, and Mr. Bishop's organization was planned to secure the most expeditious execution of the project.

The office of the Chief Engineer was located in Honolulu, where all plans were drawn, all maps were made, and records kept. The purchasing of material and the accounting were also done at the main office. The force in this office consisted of an Assistant Engineer, whose work was chiefly on plans and in preparing designs under the direction of the Chief Engineer; draughtsmen, clerks, and stenographer.

Reporting to the Chief Engineer were two Division Engineers—one located at each portal of the main tunnel, each Division Engineer having two parties in the field, each party consisting of a chief of party, transitman and rodman, and each division office had the services of a draughtsman for plotting up the notes and recording the data brought in by the field parties, all data being sent in to the main office as soon as checked and worked up.

Also reporting to the Chief Engineer was a General Superintendent of Construction, Mr. A. A. Wilson, who was in direct charge of all the constructing work.

Reporting to the General Superintendent were two Assistant Superintendents, one located at each portal of the main tunnel, and each having in charge the tunnel foreman, the shift bosses, and the gangs of tunnel men.

At the beginning of the tunnel work, three shifts of eight hours each were kept going. This was continued until the large amount of water coming into the tunnel, at North heading, became troublesome, and on account of the hardship on the men, working for eight hours in the cold water, it became necessary to cut the shifts down to six hours each, so that four shifts per day were employed for this heading.

The temperature of the water in the tunnel was approximately 66° F., or about 8° colder than the artesian water in Honolulu, or, roughly, about 1° for each 100 feet of elevation.

Great care was exercised in checking the surveys, the triangulations and the levels. This was given special care on the main tunnel, it being realized that while a small error in alignment would be unimportant, it would be necessary that all levels be correct. This levelling was done in the field by three separate parties, each of which went over the line twice, checking his own work, and the results of all three parties were checked against each other and found to compare within very small limits, thus eliminating any possibility of error. The instruments used for this work were thoroughly adjusted and tested for accuracy.

The work on the main tunnel was started at once after the surveys were checked and found correct, and was done at first by hand in order to save time and push the work along as far as possible pending the arrival and installation of the air drills and machinery.

It was of importance that bases of supplies be established at each portal, so all possible speed was made in constructing the railway from Waikane landing to the North portal and the railway from Pump 6 at Oahu Plantation to the South portal. In the meantime, camps were established and sanitary conveniences were built to comply with the requirements of the Board of Health. No serious sickness, such as typhoid fever, gave any trouble.

With the above organization, the surveys were made and checked, the plans prepared, the transportation line, consisting

of six miles of track leading to the South portal from Pump 6, and three and a quarter miles of railway from Waikane landing to the North portal, was built; camps were built; work was laid out in the field; the power plants and machinery were installed, and the actual work of excavation and construction were well under way on October 1st, 1913, when this arrangement and organization was terminated.

The actual amount of main tunnel then driven was 912 feet on the North side and 2,050 feet on the South side, or about 20% of the length of the main tunnel was driven under the direction of Mr. Bishop. Some work was also done on the lateral tunnels on both sides, but this part of the work was not rushed so much as the work on the main tunnel, inasmuch as the time required for the latter was the governing factor which controlled the date of completion.

#### INTERFERENCE BY WATER.

While it was suspected at the outset that considerable water might be encountered in the main bore through the mountain, it was not anticipated at the beginning that enough water would be developed to materially interfere with the progress of the excavation. This hope was not realized, however, for the main bore had proceeded only about 200 feet from the North portal when water to the extent of two million gallons daily was developed—this on breaking through the first dyke.

These dykes are hard, impervious strata of rock lying approximately at an angle of  $45^{\circ}$  to the tunnel axis, and nearly vertical, and they occur at intervals of varying length. Between the dykes was the porous water-bearing rock, thoroughly saturated, and with the water pent up between the dykes often under considerable pressure, so that when a dyke was penetrated, the water would spout out from the drill holes and would gush forth from the openings blasted in the headings. As the work progressed, the water increased in quantity and the difficulty of the work was enormously greater on account of the water.

The slope of the tunnel being downward from the North portal, the matter of getting rid of the water by drainage was also one of great difficulty. This at first was managed by lowering the floor at the North portal about 2 feet, this being thought sufficient at that time, and allowing the water to drain out by gravity.

At about 900 feet from the North portal, the flow of water having increased to 26 million gallons daily, the floor was again lowered to five feet below grade at the portal, and at this stage the men in the heading were working waist-deep in cold water, in a perfect torrent, the inflowing water coming principally from the face and from the roof and sides for a distance back from the heading, the flow of water apparently following the heading fairly closely. The pressure of water in the drill holes interfered very much with the blasting, so that the ordinary methods of charging and firing could not be used. The final expedient resorted to to hold the dynamite in place until it could be fired was to pack the sticks of explosive in thin metal tubes of the diameter of a stick of powder, and of sufficient length to enclose the quantity of powder desired. This scheme gave good results, but was expensive and materially delayed progress.

The texture and hardness of the rock varied considerably—some of it being particularly soft and porous and much of it hard and flinty—particularly at the dykes. The dykes varied in thickness from 14 feet down to about 4 feet, all composed of very hard, close-grained rock which was apparently waterproof. All of the rock, however, was gritty and abrasive lava, and necessitated an unusual amount of drill sharpening, two of the latest type drill-sharpening machines being kept busy all the time.

When the water had increased to the point where it could not be drained out by gravity by lowering the floor at the North portal, a siphon pipe made of redwood, and 16 inches in diameter, was installed, and this made it possible to drive the work ahead a short distance further. A second siphon

pipe 20 inches in diameter was next installed at the side of the tunnel immediately over the top of the 16-inch siphon, and this gave further relief and made it possible to extend the North heading to approximately 1,400 feet. At this point the maximum inflow of water was approximately 35 million gallons daily, which was taken out by the two siphons and gravity drainage.

It was seen that the siphon method alone would not suffice for further drilling, so a relief or drainage tunnel was driven on the West side of and parallel to the main tunnel at a slightly higher level and on an ascending slope from the portal, its object being to intercept and drain off a portion of the troublesome inflowing water. This tunnel was required to provide access at all times to the water register to be installed at the boundary between Waiahole and Waiawa, distant 1,705 feet from the North portal. This expedient proved helpful after the tunnel was extended in about 1,400 feet. The two tunnels were then worked together alternately, first one and then the other, the floor of the main tunnel being kept above grade to avoid having the tunnel men work so deep in the water. They were working at this time in water about three feet deep.

This alternate working was continued to 1,700 feet from the North portal, where a chamber was blasted out of the solid rock on the side next to the relief tunnel. A cross-cut was made to connect the two, and a centrifugal pump of 13 million gallons capacity was installed, which raised the water of the main tunnel through a pipe to the relief tunnel, which, at this point, is some 18 feet higher, and the relief tunnel acted as a drain.

With this arrangement, the work proceeded until the two headings met on December 13, 1915, and although the trouble and difficulty with the water never entirely ceased, it was possible to proceed slowly at an average rate of about 12 feet per day of 24 hours with three shifts.

**SOUTH HEADING, MAIN TUNNEL**

From the South portal the progress was rapid, often as high as 630 feet per month, or about 21 feet per day on an average, notwithstanding the long haul, which at the last was over two miles.

The first dyke on the South side was struck at 10,518 feet from the portal, the first evidence of water being from the drill holes, from which the water spouted under pressure.

The measurements of pressure by gage on some of the plugged drill holes showed a pressure of 65 pounds per square inch, corresponding to a static head of 150 feet. When water was struck, the excavation was discontinued temporarily. The spouting drill holes were plugged, the track was removed, and the floor of the tunnel, which up to this point was mainly through porous rock, was lined with concrete with a plastered cement surface; the walls in the meantime having been lined and cemented to make them watertight. Such portions of the tunnel as required overhead arching had been arched and made ready for use.

The track was then replaced and the work continued at reduced speed, due to the water, which came in in large quantities, the maximum flow from this heading reaching 17 million gallons daily, until the two headings met at 11,679 feet from the South portal.

From the foregoing it will be seen that 80% of the length of the main tunnel was driven from the South portal, and 20% of the length was driven from the North portal, the difference in these proportions from the two headings being due to the presence of water at a much earlier stage in the North heading. Had there been no water to contend with, the length driven from each heading would have been approximately the same.

In order to give room for the water to flow from the heading, the track was raised on timbers of 4 x 12 in long lengths, placed edgewise as stringers, on top of which the track ties were laid. The track was 24" gage, laid with 16-pound and 20-pound T-rail. The cars used were the standard Koppel

one-yard, all-steel dump cars. Electric locomotives driven by storage batteries were used in both headings. These gave good service on short hauls, except for the necessity of frequent recharging of the batteries, and minor difficulties due to water.

A gasoline motor tractor was used for the long haul, until the track was raised in the South heading, the raising of the track leaving insufficient clearance for the gasoline locomotive.

A cable haul was then installed, this operating entirely without interruption from the water and clearance. The steel cable used was one-half inch in diameter, and was approximately four miles in length, spliced to make a continuous cable, and running over a sheave secured to a timber in the floor of the tunnel at 10,800 feet from the South portal. The cable tractor was a double-drum puller with a cable tightener, and was driven by belt and gearing from a 50 H. P. electric motor. There was considerable wear on the cable, due to abrasion on the ties. This wear was much reduced by damming up the water in the tunnel at frequent intervals in order to permit the cable to run in the water, which, apparently, acted as a lubricant and reduced the wear. The cable parted on two occasions, and delayed the work until a splice could be made. One cable was completely worn out and the second cable used was probably about half worn out, over a period of eight months.

#### POWER PLANT.

At the outset it was planned by Mr. Bishop to supply electric power to the two portals for operating the air compressors and other machinery from a central power station, located at Pump 6, transmitting at high voltage by pole line to the two portals, the pole line extending past the South portal over the mountain to the North portal.

This station was installed and the power line was built from Pump 6 as stated, but before it was completed, water had been struck on the North side, and the quantity was found to be sufficient to supply all the power needed, the available convenient hydraulic head being approximately 250 feet. The

central steam-driven power plant was completed, however, and held at reserve for emergency use, although the plant and power line from Pump 6 to the South portal was used very little. The central power plant consisted of 500 H. P. Babcock & Wilcox water-tube boilers, supplying steam at 180 lbs. pressure, to a 350 K. W. high-pressure non-condensing steam turbo generator set, delivering 3-phase current at 3,300 volts pressure, stepped up and transmitted at 11,000 volts to the two stations at the portals, and there stepped down to 250 volts for use at the motors. Oil fuel was used for the boilers, and the location at Pump 6 was chiefly on account of the convenience of fuel supply, which was drawn from the tanks supplying fuel to the boilers at Pump 6.

The plant which actually supplied the power for use at the tunnel was a 350 H. P. Pelton water-wheel belted to 300 K. W. 3-phase generator, these units being installed in the gulch below and near the North portal.

There was an abundance of water from the North heading, and the head at the Pelton wheel was 250 feet. This made an inexpensive and easily operated plant which was entirely satisfactory except at rare intervals when the water was low. The power was transmitted by pole line to the South portal in the opposite direction to that originally planned.

The local plant at each portal contained a duplex 2-stage Ingersoll-Rand air compressor; supplying 800 cubic feet of free air per minute, at a pressure of 100 pounds per square inch, belted to electric motors; receivers; Leyner drills; sharpening machine; pumps; blacksmithing equipment; blowers for ventilation; a number of small machine tools for repair work, and facilities for making up the metal powder tubes. The air drills used were the water-Leyner drills up to 10 feet long. These drills use a jet of water under pressure which forces out the cuttings from the point of the drill. They are capable of rapid drilling, there being very little interruption from the clogging up of cuttings.

Air was supplied to the drills by a 4-inch pipe line running

to a manifold which was always near the heading. Each round required from 12 to 20 holes, eight to ten feet depth, the holes being drilled at slightly converging angles in order to break the rock effectively. Each round required from 50 to 100 pounds of 40% or 60% dynamite, Giant brand being used.

The ventilation of the tunnel headings was secured by forcing air by means of blowers through 16-inch metal pipes which were carried along the side of the tunnel, the air being forced in continuously. When a shot was fired, the direction of the blower was reserved for a while, and the smoke and foul air was drawn out of the tunnel through the pipe until it was clear and fit for the men to work. This arrangement of ventilation proved effective and saved a great deal of time.

#### LABOR.

Special tribute should be paid to the Japanese tunnel men, without whom the excellent progress made on the tunnel would have been impossible. These "professional" tunnel men, as they call themselves, prefer this work to any other, and they apparently take delight in the hardships incident to the work, the exposure to the cold water, and the risk in handling explosives. They were on the job all the time and never failed to deliver the goods in situations in which white men or native Hawaiians would have been physically impossible. Most of the drilling and mucking was done by these tunnel men as subcontractors—a bonus being given for rapid work, which sharpened their interest and never failed to give results.

#### CAPACITY OF CONDUIT.

The size of tunnel section is approximately 7 feet wide and 7 feet high, but in many places the section is larger, due to the uneven cleavage of the rock, and the fact that certain portions are unlined. The capacities of different portions of the conduit are as follows:

Tunnels 18-27 North side.....	80 million gallons daily
Tunnels 13-18 North side.....	100 do.
Tunnels 1-13 North side.....	115 do.
Main tunnel .....	150 do.
Lateral tunnels South side.....	125 do.
Pipes and ditches to Kipapa Gulch.....	125 do.
Pipe across Kipapa Gulch.....	100 do.
Ditches beyond Kipapa Gulch.....	do.
.....100, 140 and 40	do.
Pipes beyond Kipapa Gulch..100 and 40	do.

The capacities of the various parts of the conduit are affected to a considerable extent by the slope or grade. The tunnel section was governed to a very large degree by the minimum size in which the most rapid work could be done, and in general the section for this reason is greater than the 7-feet size specified.

#### MEASUREMENT OF WATER.

The main bore through the mountain was intended at the beginning to be merely a conduit to convey the water from one side to the other, but in the process of building the tunnel, water was developed so that this became a source of supply, and for this reason it is necessary to measure the flow at certain boundaries as a basis of payment for the water to the owners of the land. Two stations for the measurement of water are operated, one at the boundary of Waiahole and Waiawa, and one between lateral tunnels H and I on the South side, measurements at these points being all that are required for payment of the water. These stations are in channels of uniform sections which are rated, and the stage of water is recorded by an automatic water-stage register, thus giving a permanent record of the daily flow as a basis for payment.

The maximum quantity of water developed was on October 16, 1914, and was approximately 35 million gallons daily from the North portal. The flow of water has varied considerably from time to time, and has been decreasing, apparently indicating that the water stored in the mountain between the dykes is gradually being drained off. It is thought that the permanent or continual flow from the tunnel bore will be governed by the rainfall over this drainage area. The present flow of

water percolating into the main tunnel is 14 million gallons daily. This appears to be the dry weather flow.

#### CLOSED CONDUIT SYSTEM.

This system of tunnels is essentially a closed-conduit system, that is, the flow is entirely through closed tunnels, not subject to interruption by freshets or washouts or from rubbish or wash from the mountain streams, the intakes being so built as to admit only water as free from rubbish as practicable. Only at three points in the tunnel system—and these are on the South side, one of which is a gaging station—does the water flow in open channels for an aggregate length of 160 feet.

Pipes were not a part of the contract to Mr. Jorgen Jorgensen. Steel pipes were let out on contract to the Lord-Young Engineering Co. The last of these pipes has just been completed. The contract for the redwood pipes was let to Lewers & Cooke, Ltd.

It is intended to use the reservoirs so far as possible to take care of the water flowing at night, so as to utilize the conduit to its fullest capacity.

The Waiahole Water Co. has taken over from the Oahu Sugar Co. the Ahrens Ditch in Waiawa, the Kipapa Ditch, the Waikakalaua Ditch in Waipio, and the Hoaeae Ditch. Two redwood pipes having a total length of 1,223 feet have been laid across two gulches on the line of Hoaeae Ditch, cutting out 2 $\frac{1}{4}$  miles of ditch.

The water delivered by the Waiahole System is chiefly used on newly planted cane on land above the lift of the pumps. During construction the water developed in the main tunnel near the South portal was at times utilized for irrigation. On May 27, 1916, with Mr. H. Olstad as Superintendent, continuous operation of the project was begun.

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HILL's sister steamships, *Great Northern* and *Northern Pacific*, were in port here together in Carnival week of 1916, occupying adjoining berths at piers 6 and 7, and attracted much attention.

## THE HAU

### AN INTERESTING TREE OF HAWAII

BY VAUGHAN MACCAUGHEY.

THE presumable direction of growth for any tree that finds itself in a reasonably normal habitat, is straight up into the sunshine. The coco palm, for example, succeeds admirably in this first rule of arborescent etiquette. It rears



its gigantic rosette of aeolian plumes a dizzy hundred feet above the coral beach. The *kukui*, in fragrant, humid groves, twists its gnarled arms in tortuous canopies. The fretted beauty of its silver-green dome amply compensates its sturdy deviation from the vertical. Descending to the third and lowest step of our arboreal scale we find the aberrant *hau*\* prostrate and sprawling, heedless of its sylvan pedigree. It makes of itself a matted tangle of props and branches. Its silhouette is ridiculously like that of a pancake. It is a horizontal tree.

\* Pronounced like the English word "how"; botanic name *Hibiscus tiliaceus*.

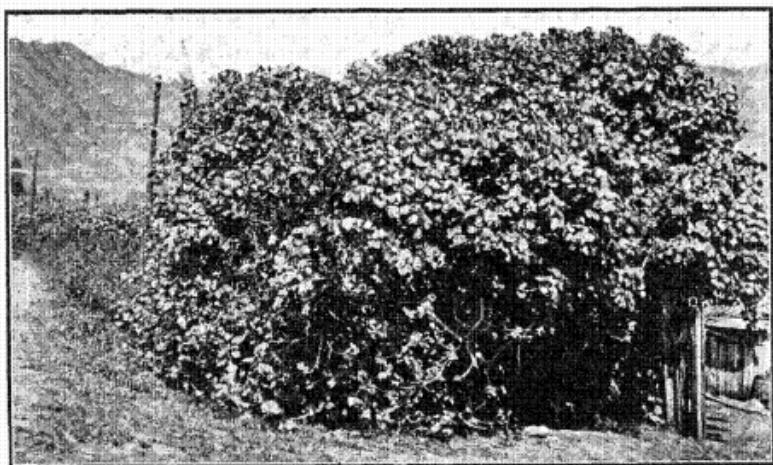
This conspicuously horizontal or deliquescent growth-habit is due to the absence of any erect central trunk. The *hau* spreads at the margin of its jungle, by the peripheral elongation of the radiating meshwork of its boughs. The large, smooth-barked branches first curve upward from the ground, archwise, to a height of four to six feet. Then they droop at the tip, finally touch the soil, and root. This unique horizontal progression, which may be facetiously compared with that of a "measuring-worm," which continues indefinitely. The *hau* is immortal; it perpetually renews itself. Other branches rise through and above the lower tier, and thus in time there develops a labyrinthine network of brown, supple branches, tier on tier, to a height of thirty or forty feet. The close-lapped foliage masks the junglelike green canvas stretched over an inextricable heap of huge jack-straws. Sometimes these *hau* jungles cover several acres, or even the entire floors of small ravines, with no visible demarcation between the individual trees.

When properly trained and pruned the *hau* can be compelled to deport itself in formal aborescent style. It then develops a stocky trunk two or three feet thick, and sends out above, at the desired height, a wide-spreading, shady crown. *Hau* tree arbors are particularly prized at seaside residences, where they afford delightful protection from the glare of sea and sun.

*Hau* is a soft-wooded and quick-growing tree, like the willows. Fence posts cut from its branches frequently strike root and put out leafy branches. The smooth, pulpy bark is easily peeled from the white sapwood. The inner bark is rich in hard bast fibers. It has been used from the earliest times throughout Polynesia for an excellent quality of bark cloth, (*tapa*), and for rough cordage. In Fiji the bark is used for the *liku* garment of the women. This is a short skirt made of a great number of the fibers hung vertically on an ornamental belt or waistband. The Chinese rice-planters in Hawaii pollard the

trees, causing them to throw out numerous sprouts. These are cut when an inch or so in diameter, and the stripped bark is retted and used for tying rice-bags.

The natural curvature of the branches, already mentioned, was cleverly utilized by the Hawaiians and other Polynesian natives in the construction of their outrigger canoes. The indispensable outrigger was made by placing two long, curved *hau* poles across the canoe, at about one-quarter of the distance from each end of the canoe. The poles are so placed that on one side of the canoe they project a few inches, while on the



other they extend from six to eight feet. They are lashed firmly to the body of the canoe; then a hewn *wili-wili* pole, about twelve feet long and six inches in diameter, is lashed to the under side of the *hau* poles, near their extreme ends. The *wili-wili* lies parallel to the body of the canoe, and extends slightly beyond the *hau* poles at each end. These three members comprise the well-known and highly efficient outrigger of the Pacific Ocean.

According to Dr. N. B. Emerson, the distinguished student of Hawaiian lore, in ancient times "when an army went forth to battle a priest went on ahead bearing a branch of the *hau*

tree. This was set upright in the ground by the priest and guarded in that position by him as a favorable omen or sign for his side. Each side religiously respected the emblem of the enemy, and did not interfere with their *mi-hau*. So long as the branch was kept erect it meant victory to its side. If the battle finally went against them the *hau* was allowed to fall. There was a proverbial expression, "*Ua puali ka hau nui i ka hau iki*," literally: the great *hau* is broken by the small one, meaning the large force defeated by the lesser. The *kahuna* who performed this *mi-hau* service was really the chaplain of the army.

The same authority further states that the straight, light poles of the *hau*, called *au-au*, were very useful for training the men in spear practice. The head of the spear was blunted and wrapped in *kapa* to make it harmless. The young soldier began practice with this. When he had acquired sufficient proficiency he was then given the very heavy, sharp-pointed *kauila spear*, which was the one used in actual battle.

The showy, hibiscus-like *hau* flowers are clustered at the ends of the branches and in the upper axils. The large petals are rich, bright yellow, and usually have a deep, purple-brown base. This forms a dark center to the symmetrical flower. Occasionally doubled flowers occur. The attractive blossoms open at dawn and close at dusk, lasting but for a day. During their decline they become suffused with red. A certain Hawaiian village is called *Hau-ula*, the red *hau*. The natives formerly used a tea made of the flowers as a soothing application in certain catarrhal diseases. The fruit is a woody, wool-covered capsule, about an inch in diameter. On maturity it splits into five symmetrical compartments, each of which contains three smooth seeds.

The *hau* is cosmopolitan in its range, and occurs in many tropical countries. It is conspicuously abundant in the tropical islands of the Pacific, and finds in the Hawaiian archipelago its northernmost Oceanic limit. It was probably intro-

duced by the primitive Hawaiians in their migrations from Samoa. It is today a distinctive tree of Hawaii's beaches and lowlands. In the wildness of its jungle growth, in its varied uses under semi-cultivation, and in beauty of flower and foliage, the familiar *hau* has few rivals within the shores of this mid-Pacific island world.

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## HAWAII'S PREPAREDNESS

BY A. P. TAYLOR,

*Secretary-Director Hawaii Promotion Committee.*

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JUST a century ago the first real "Preparedness Policy" in the Pacific was evolved on the shores of the beautiful harbor of Honolulu, capital of the Hawaiian kingdom, then ruled by Kamehameha the Great. The "Preparedness Policy" was the result of suspicion aroused by the presence in Hawaiian waters of the Russian ship *Myrtle*, which had been sent to the Hawaiian Islands by Governor Baranoff, of Siberia, to consort with the Russian brig *Elmen*.

The building of a blockhouse by the Russians at Waimea, Kauai, and the news of these warlike activities reaching Honolulu, the king commanded the construction of a fort in Honolulu, which was completed under the direction of John Young, one of Kamehameha's English advisors. Upon the completion of the fort in the latter part of 1816, Captain George Beckley, an English navigator, who was Kamehameha's military advisor, was given command, and over it was raised the new Hawaiian flag, the handiwork of Captain Beckley and members of his family.\*

Just as in 1816 the government of Hawaii prepared for any emergency and by a show of power compelled the Russians to give way in their desire for conquest, or for commercial supremacy in the islands, so the Hawaiian government in

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\* This honor is also claimed by many as belonging to Captain Alex. Adams. See *Hawaiian Annual* for 1880, pp. 24-26.

1916 prepared for any warlike emergency which might arise and force the Hawaiian Islands to the front and center of conflict in the Pacific Ocean.

The Honolulu fort of 1816 was nearly square, measuring three hundred to four hundred feet on a side with walls about twelve feet high and twenty feet thick. The coral reefs which protect the shores of Honolulu from direct landings from any naval force, were quarried for material for the fortress walls, which were pierced with embrasures for the heavy and cumbersome guns of that period. The Honolulu fort stood on the seaward side of Queen street and directly at the foot of Fort street, and remained there until 1857, when it was demolished. The fort mounted about forty guns.

Later Punchbowl Hill, an extinct tufa crater rising directly behind the city of Honolulu, was utilized as a vantage point for heavy guns.

Hawaii has met suspicious warlike movements against its integrity on at least three separate occasions. The first was in 1816, when the Russian movement at Waimea caused Honolulu to be protected and was the cause, eventually, of the Russians being compelled to leave Hawaiian waters.

In the summer of 1851 letters were received by the Minister of Foreign Affairs in Honolulu from an islander residing in San Francisco, announcing that a filibustering expedition was being organized there, for the purpose of capturing the capital city, overthrowing the monarchy and setting up an independent republic. Followed then the greatest effort for military preparedness ever witnessed in the Pacific Ocean. The Privy Council held secret meetings and elaborate plans were drawn up for the protection not only of Honolulu, but of each of the islands or wherever landings might be made by an invading force. The plan included the enlistment of Hawaiians to augment the "regular army" which was in reality the personal bodyguard of the sovereign. These were to be uniformed, quartered and paid exactly in accordance with the upkeep of the regular forces. Cavalry units were planned for each of

the islands for patrol service along the shores to watch for the approach of the mysterious filibustering expedition. The premier plan was for the enlistment of a voluntary force of Hawaiians on each of the islands to be armed with pikes and spears, designed to be the largest armed body, and involving practically all able-bodied men in the country.

The United States wooden frigate *Vandalia* was lying in the harbor of Honolulu at the time of the receipt of the news from San Francisco, and the captain was taken into the confidence of the cabinet and requested to take measures to prevent the landing of the filibusters, on the ground that the expedition was being organized in a country over which the American flag floated and a country with which the Hawaiian government was at peace.

Prince Lot Kamehameha, a relative of the monarch, was appointed Lieutenant-General of the entire Hawaiian forces. The expedition never started from San Francisco, but the San Francisco papers of that period contained a number of items concerning the possible activity of the adventurers. The plans of the Hawaiian government to repel invaders were eventually pigeon-holed, and the great army of piked men, cavalry and regulars was never organized.

In the spread of the propaganda for preparedness which assumed the proportions of a tidal wave all over the United States, the shores of the Hawaiian Islands were touched. Where the National Guard effective force for some years had seldom been above 400 men and confined largely to Honolulu, the people—Hawaiians and Americans, from abroad, alike—sprang eagerly to the call for reinforcements, and within a short period four regiments of national guardsmen had been organized, a regiment on each island. A brigadier-general of national guard was named, and with a new and spacious armory at Honolulu, and others prepared in the other islands, the call to the colors was extremely popular.

Placed on a footing with the regular armed force of the United States, which now comes close to 11,000 officers and

men stationed in and near Honolulu, the militia has become an important factor in the Preparedness Policy of the United States in Hawaii.

Perhaps there is no better example of the cosmopolitan life of the Hawaiian Islands than is presented by the personnel of the enlisted force in the national guard. In the regiment in Honolulu are separate companies of Americans, Hawaiians, Chinese and Filipinos, the latter showing an aptitude for military life which has won them praise from the regular army and for excellence in drill and maneuvers. The Hawaiians have always been the backbone of the national guard, and in the new call to the colors, they came forward by hundreds to serve the Flag. As a further example of Hawaii's peculiar cosmopolitanism, the commanding officer of the national guard, Brigadier-General Samuel Ivan Johnson, who rose from a private in the guard to his present position, is a Russian by birth and reported to have been in his junior years, a sub-officer in the Russian navy.

Shoulder to shoulder the guardsmen and the regulars practice field maneuvers and combine in the use of the big guns in the shore fortifications.

Uncle Sam for years has been "prepared" for whatever emergencies may arise with respect to the Hawaiian Islands and their defense from foreign invasions, which means defense of the Pacific Coast. The Naval Station at Pearl Harbor, eight miles from Honolulu, is finished save only the drydock which, due to unforeseen accidents, has been delayed, but will be finished by the end of 1917. At the Naval Station \$20,000,000.00 will have been expended to make this the model navy yard under the American Flag. Nearby and protecting the station is Fort Kamehameha, mounting huge mortar and rifled guns. Twenty miles away and almost overlooking the approaches to Pearl Harbor is Schofield Barracks, a post where soon will be stationed some eight to ten thousand men under the new army re-organization plan.

Within the city of Honolulu proper is Fort Shafter, an

army post with the Department hospital adjoining. At Diamond Head, an extinct volcano, has been constructed Fort Ruger, where heavy mortar guns are mounted. This is the most unique use to which a volcano has ever been put. Fort De Russy on the beach at Waikiki mounts 14-inch guns, the largest ever placed in the Pacific.

In 1840, Lieutenant Curtis, United States Navy, was asked by the Foreign Minister of the monarchy of Hawaii, to report on the most favorable and practical site for defensive works for Honolulu. That officer, with unusual foresight, reported back that Pearl Harbor presented the most advantageous location for defensive works for the erection of store houses and fortifications. Half a century later the United States Navy Department, or immediately after the annexation of the Hawaiian Islands to the United States in 1898, began the construction of its naval station at Pearl Harbor, and thus was realized the dream and hopes of an American naval officer of a period when ships of war were propelled by sails, and the guns were muzzle-loaders and fighting was entirely different from the method of fighting today.

Hawaii is prepared not only to defend its own fair shores, but to defend the shores of the great Pacific coast of the parent continent. Hawaii is as loyal, although only a Territory, as the most sovereign State of the great American Union.

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PROSPECTIVE.—Upon completion of this issue of the *ANNUAL*, the editor and publisher hopes to resume his spare-time labors on a work devoted to ancient Hawaiian Mythology, for publication in the near future; a work that has long been in preparation by research and study for the fundamental beliefs of the early native race, but interrupted by more pressing duties, and further delayed by his labors on the Fornander Collection of Hawaiian Antiquities and Folk-lore, being issued in the Memoirs of the Bernice Pauahi Bishop Museum Series.

This new book will be of some 300 or more pages, with notes, glossary, and index for convenient reference, and an appendix of many of the gods of Hawaii, compiled here for the first time.

## KAHOOLAWE

BY C. S. JUDD.

**L**YING between the channel of Kealaikahiki, "The route to Kahiki," and Aalalakeiki channel, where the ocean current running counter to the Maalaea wind kicks up the surface of the water and makes the children cry, lies the Island of Kahoolawe, bathed in romance and a cloud of red dust.

History is rather silent concerning this unfrequented island but hints concerning its barrenness and its use as a place of exile have given Kahoolawe rather a bad name. M. J. Arago in recounting his voyage around the world in the *Uranie* in 1817-1820, describes the rocky sterility of the island and says:

"Taouróé sera éternellement déserte, ca la vie y est impossible"—Kahoolawe will forever be uninhabited, because life there is impossible.

It was on the shores of Kahoolawe that Kaluahinenui, a survivor from the foundered schooner *Keola*, dragged up her weary body from the sea in May, 1840, after thirty hours of struggle in the waters of the Hawaii channel in the attempt to save the life of her husband Mauae.

The use of Kahoolawe as a place of banishment probably began about the year 1830, for history tells us that then Kaahu-manu intended to send Louisa, a Catholic woman, to the island as an exile but was dissuaded from doing so by Mr. Richards.

Although the early census of the Hawaiian Kingdom, which may not be considered very accurate, gave the population on Kahoolawe as 50 in 1823, 80 in 1832, and 80 in 1836, the men from the Wilkes' U. S. Exploring Expedition, who landed on Kahoolawe in March, 1841, found the island uninhabited except by a few poor fishermen and fifteen convicts who, under the superintendence of Kenemoneha, a Maui chief who had been condemned for forgery to spend five years in exile upon the island, lived in a village of eight huts built close to the sea.

At this time, Lae-o-kaena on Lanai is supposed also to have been a place of banishment for women. Confinement on Kahoolawe seems to have made the men exiles venturesome, for there is a story of how they once tested the tide by casting a *wiliwili* log off from the shore and finding conditions favorable swam to Maui, a distance of seven miles, resting on Molokini on the way, stole taro, sweet potatoes and some canoes and then paddled over to Lanai and brought women back to Kahoolawe to share their exile.

The use of Kahoolawe as a place for banishment lasted at least until 1852, for on November 10, 1847, John Young, minister of the interior, wrote as follows to Judge Lee concerning one George Morgan who was convicted of stealing money:

"Cast him away on another land, at Kahoolawe, the island nearest Maui. That is the place they are usually sent to. Heretofore the natives who were sent there swam to Maui, could not confine them there, but a foreigner cannot accomplish such a feat."

On January 14, 1852, the acting governor of Maui wrote to the minister of the interior asking approval of his action in taking Morgan back to Lahaina and giving him medical treatment because Morgan had become sick and had run out of food and water in his place of exile.

After the custom of using Kahoolawe as a place of banishment had ceased, attention was turned toward putting the island to more profitable uses, for we find that on August 18, 1854, Z. Kaauwai applied to the Privy Council to lease the island for fifty years at \$200.00 per year. This application does not seem to have been approved, but on March 11, 1864, the first lease of Kahoolawe was made by His Hawaiian Majesty's minister of the interior, Charles Gordon Hopkins. The lease which included the whole island was to run for fifty years, from January 1, 1863, at an annual rental of \$250.00. Following is a list showing the original lessee and the assignees with dates of assignment of the lease:

Elisha H. Allen, January 1, 1863. Original lessee.

Albert D. Courtney, Wm. H. Cummins, assigned March 22, 1880.

Kynnersley Bros. and R. von Tempsky, assigned April 27, 1887.

B. F. Dillingham Company, Ltd., assigned 1901.

C. C. Conradt, assigned December 21, 1903.

Eben P. Low, assigned December 28, 1906.

Proclaimed a forest reserve on August 25, 1910.

It is difficult now to look back and determine with accuracy the amount of vegetation that previously existed on Kahoolawe. Old Hawaiians say that sugar cane, bananas, and sweet potatoes were raised there in the early days and that wild pigs uprooted the bananas. The narrative of the Wilkes' U. S. Exploring Expedition says:

"In passing over the island, the walking had been found very tedious, for they sunk ankle-deep at each step. The whole south part is covered with a light soil, composed of decomposed lava; and is destitute of vegetation except a few stunted shrubs.

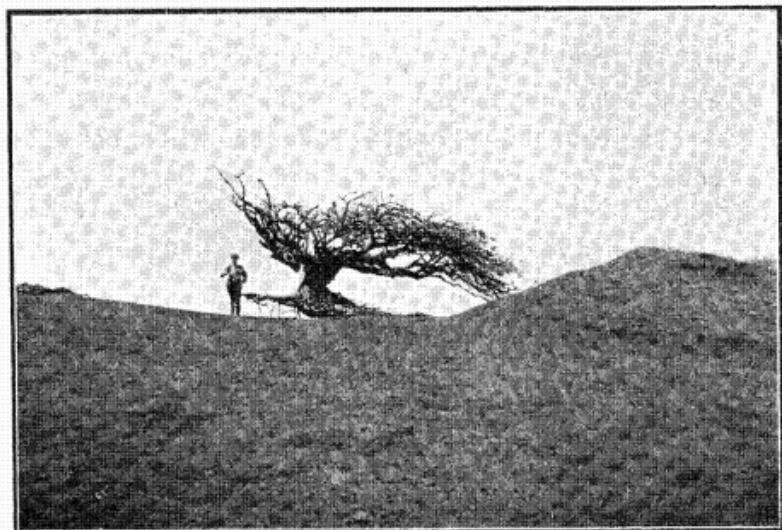
"On the northern side of the island there is a better soil, of a reddish color, which is in places susceptible of cultivation. Many tracks of wild hogs were seen, but only one of the animals was met with.

"The only article produced on the island is the sweet potato, and but a small quantity of these."

From evidences still visible today in the form of dead prostrate trunks, it is certain that along the top of the island at least there was quite an extensive grove of the xerophytic *wili-wili* tree, *Erythrina monosperma*, a few living specimens of which still survive. Among the smaller forms of vegetable growths, there doubtless were found the *ilima* and many other weed-like shrubs and low-running plants, and among the grasses the *pili* was most conspicuous. Prominent today on the drier situations is the *paka*, the tree tobacco, *Nicotsiana glauca*, which the Spaniards brought to the islands in the early days.

More recently the white cactus has been introduced, and is found in a few places on the north side of the island. To this has been successfully grafted the spineless cactus. The highland ironwood, *Casuarina quadrivalvis*, has been planted near the top of the island but only a few trees have survived the exposure and drought.

By far the most valuable tree introduction on Kahoolawe, however, is the algaroba, *Prosopis juliflora*, which is now



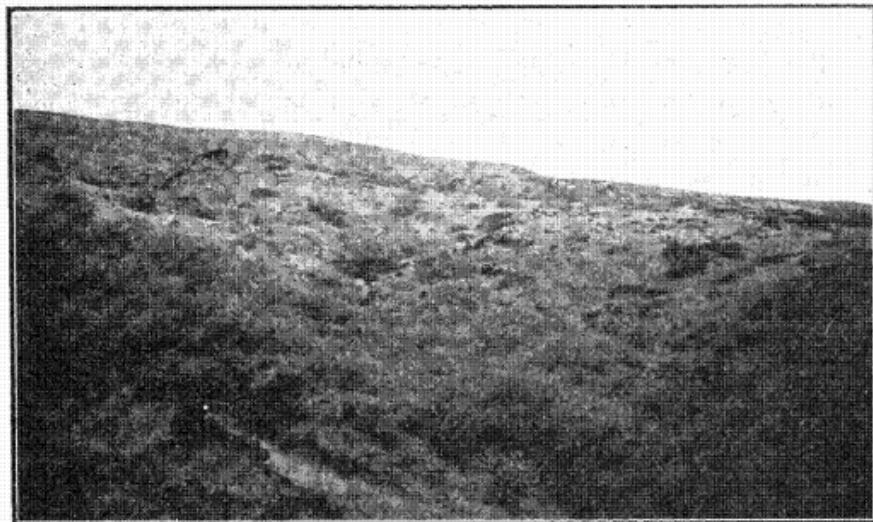
WILIWILI TREE ON KAHOOOLAWE UNDERMINED BY THE WIND.

found over about one-third of the island or wherever the horse stock has grazed on the *pili* and other grasses. Ten years ago there were only a few of these trees in the gulches but now they are found on the ridges and upland flats as high as 1,200 feet above the sea and fairly thickly scattered wherever the stock has grazed.

The present denuded condition of part of Kahoolawe has been due primarily to over-grazing, although aeolian erosion seems to have been in operation there as far back as 1841. Goats were found on the island before sheep were taken there by the first lessee. The first attempt at raising sheep resulted

in failure on account of the drought, and the land lay idle then for some time.

The second holders of the lease brought over cattle, horses, and pigs, and in 1890 the third holders of the lease had 900 cattle and 12,000 sheep on the island. At one time the number of sheep reached 15,000 and there were always innumerable quantities of wild goats. In 1909 there were 40 head of cattle, 40 head of horses, and approximately 3,200 sheep, and 5,000 goats on the island. The raising of cattle and horses on Ka-



ALGAROBA TREES SPREADING ON KAHOOLAWE.

hoolawe in any large numbers was always a losing game because of the lack of fresh water. The water in the few surface wells in the larger gulches has always been too brackish to be relished by stock, and consequently when a prolonged drought dried up surface water in pools in the gulches and in the two natural reservoirs near the top of the island, the stock naturally died from thirst.

Now let us see what were the results of this over-stocking of the island. The innumerable sheep and goats cropped the grass and other herbage so closely that the sod cover was broken. This gave the entering wedge for the wind to exert

its influence on the light top soil. This unprotected and exposed soil could not stand the force of the strong trade wind but was lifted little by little and carried southwest across the island many miles out to sea in the form of a great red cloud. In this manner the top of the island which was once covered with from four to ten feet of good soil has been reduced largely to hardpan. Where grass turf has protected the soil in many places there may still be seen hillocks or columns of soil standing up above the hardpan. In this process of wind erosion the soil has been blown away also from the roots of *wiliwili* trees leaving them stranded like ships high and dry on the beach at low tide. This cloud of red dust is very familiar to the voyager who passes Kahoolawe in windy weather, and traveling on the island when the wind is blowing strong is very uncomfortable on account of it. A rain gage placed near the southwestern end to measure the meager rainfall is often on examination found not to contain water but red dust.

The area affected in this manner by aeolian erosion covers fortunately only about one-third of the island on the higher elevations. One-third, as already has been stated, in the more sheltered parts is covered with *pili* and other grasses in which there is growing up a fine stand of young algaroba trees. The remaining one-third, toward the southeast, is at the lower elevations and is very rocky and barren.

The greatest length of the island is about ten miles from east to west and at the widest point it extends six miles from north to south, and has a total area of 28,260 acres. The highest point is 1,427 feet above the sea and although the smallest of the Hawaiian group, the island is really much larger than it appears. This can be vouched for by the goat hunter who wearily scrambles over Kahoolawe's dry and hot reaches.

The prominent features, familiar to those who have visited the island, are the long, gentle slopes of tall *pili* grass cut by sudden steep-sided gulches on the northwest side; the glaring

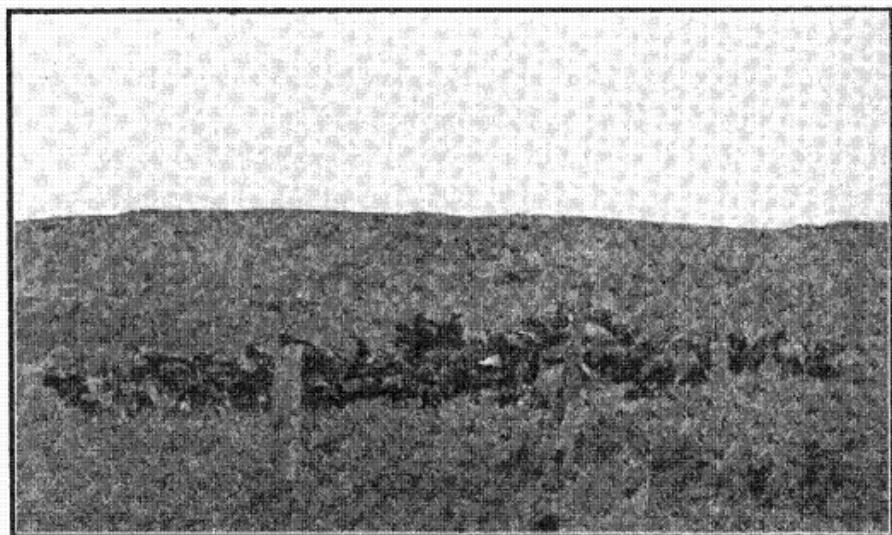
white sand beach at the southwest end with the skeleton-strewn goat pen near it; the abrupt cliffs on the east end of the island which hem in Kanapou Bay with its brown beach covered with driftwood of Douglas fir, western red cedar, redwood and spruce brought from the Pacific coast by ocean currents; the small bay near the *heiau* where the ship *Olga* was wrecked in 1906; Kuheia Bay, the landing-place near which is the little cluster of houses and sheep pens, and on the top of the island the extensive area of bare hardpan with the two natural reservoirs, already mentioned, containing muddy water in the rainy season.

Kahoolawe has been cited as an example of a place where the rainfall has been lessened on account of the destruction of the forest, but I am loath to give this much credence because, so far as can be ascertained, there never did occur any extensive or heavy forests on the island. It is true that if extensive forests existed there now the rain falling on the island would run off much more slowly and would be available for long periods in the form of springs and small streams which are not now found there. From somewhat unreliable records kept during the years from 1912 to 1914, the annual precipitation on different parts of the island varied from 5.33 inches to 18.35 inches. The general report is, however, that 40 years ago there was a much heavier rainfall on Kahoolawe which used to drift over to the south end of East Maui at Ulupalakua. This may be ascribed to the present-day phenomenon, for very frequently the moisture-laden clouds begin to pile up on Kahoolawe from the southwest and whenever the trades from Maalaea slacken up, these clouds with the Nalu breeze drift across the seven-mile channel to Maui dropping their welcome precipitation on the parched earth beneath.

Toward the termination of the Kahoolawe lease it became apparent that as the erosion continued the island was becoming of less and less value to the people of the Territory and that an attempt, at least, should be made to reclaim it. Naturally the first step to be taken was to rid the island of all stock

and in order to hasten matters the lease, which was to expire on January 1, 1913, was taken over by the government with a remission of rent, the island was declared a forest reserve on August 25, 1910, and was placed in the hands of the Board of Agriculture and Forestry.

When the last lessee took over the island in January, 1906, there were estimated to be 3,200 sheep and 5,000 goats on the island. During the last ten years all but approximately 150 sheep have been removed and over 4,300 goats have been



WILD GOATS CORRALED ON KAHOOLAWE.

slaughtered. It has been found practicable to drive the goats in large numbers into the pen at the southwest end.

During this period there has already been a marked change in the improvement of the island due to the reduction in the number of stock. Although the denuded area has not been reduced in size, the surrounding fringe of vegetation is in much better condition, the *pili* grass has grown tall and rank; other grasses such as *manienie* and *paspalum diliattum* have come in; the native weeds have taken on a new lease of life and the algaroba is extensively established and will be a valuable asset in the future.

Plans are now laid for getting rid of the few remaining wild goats and then attention will be turned toward the reclamation of the denuded part of the island by closing the present fringe of vegetation in upon it with the aid of windbreaks. Just how this can be done most economically must be determined by a series of experiments. To bring back a cover of vegetation over the whole island would require a long time and a considerable outlay of money, but natural means such as self-sowing trees and plants will be relied upon as far as possible.

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## A MASONIC ANNIVERSARY

BY ED TOWSE

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ON the evening of the 8th day of April, 1916, there was celebrated by an elaborate banquet at the Alexander Young Hotel the "Seventy-fourth Anniversary of the Coming of Masonry to Hawaii." The propaganda was introduced by Capt. Le Tellier of the whaling bark *Ajax* of Havre. He held, from the Supreme Council 33° Scottish Rite of France, a roving commission authorizing him to "set up Masonic Lodges in the Pacific Ocean," where he followed his calling for many years.

The lodge, the first to exist in this part of the world, was organized aboard the *Ajax* and such well-remembered names as those of Captain John Meek and Henry Sea were in the list of both dispensation and charter. The title of the body was Lodge le Progres de l'Oceanie No. 124 and it continued active here until ten years ago. Then it went under the jurisdiction of the Grand Lodge of the State of California as Oceanic Lodge No. 372. Petition has been made to restore the old name and will likely be granted. "Le Progres" always "worked" the three degrees of the Scottish Rite, all other Masonic "blue" lodges in the new world, with the exception of Parfait at San Francisco using the three York Rite degrees since the days of the Revolutionary fathers. Two of the Ka-

mehamehas, Kalakaua, Governor John O. Dominis, consort of Liliuokalani, "sat in the east," in "Le Progres." The late Joseph O. Carter, the late David Dayton, the late Prince David, P. C. Jones and many other strong men of Hawaii were "among the brethren." The first home of the lodge was the residence of Captain Meek, on the *makai* side of King street, near Smith. On the old Registers of the Tyler is found many times the name of Dr. Rooke, introducing officers of the British navy. Other visitors were French and American naval officers and almost a directory of whaling and merchant captains from all over the world and the leading business and professional men and officials of the Kingdom.

#### COMPARATIVE CHRONOLOGY—1842.

Kamehameha III on the throne. Publication of Hawaiian Laws. Charlton of the famous waterfront land controversy, left for England. Five years before postage stamps were used. Seven years after Dana's cruise to California. Thirteen years after the founding of Mormonism. Ten years after the anti-Masonic nominations for President and Vice-President. Two years after the opening of the Royal School. Seven years after the death of John Young. Three years after the French aggressions. One year after the death of Kapiolani. A decade after Boki's sandalwood expedition. Two years after the proclamation of the first constitution. Three years after the death of Kinau. First Hawaiian cabinet with Dr. G. P. Judd, chairman of the treasury board. Three years after completion of translation of the Bible into the Hawaiian language. Sir George Simpson and Dr. McLaughlin, "Governors in the service of the Hudson Bay Company," visited Honolulu, expressed sympathy with the Hawaiian government and favored the King as against Charlton. One year after the ruler and premier signed at Lahaina the contract with Ladd & Co. giving the privilege, at a low rental for a term of 100 years, of "leasing any now unoccupied and unimproved localities." This concession was valued at but \$200,000.00 in Belgium. One

year after the completion of Kawaiahao church. Lincoln 32 years of age and wedded. Population of United States less than 20,000,000. Whaling industry twenty years old. Three years prior to opening of customs record succeeding Mr. Paty's journal as harbormaster.

In 1842, the Bishop of Nilopolis (see of Hawaii), "having returned to France for equipment and assistants, sailed for the islands in the ship '*Joseph and Mary*,' accompanied by seven priests, seven catechists, nine lay brothers and ten nuns, with a large supply of silver crosses, chalices and other church ornaments and a cargo of goods for their mission. The ship founded off Cape Horn and was never heard from again."

In 1842 the Hawaiian envoys Richards and Haalilio were received at Washington by Daniel Webster, secretary of state, who gave them a letter in which he "declared as the sense of the government of the United States that the government of the Sandwich Islands ought to be respected; that no power ought to take possession of the islands, either as a conquest or for the purposes of colonization; and that no power ought to seek for any undue control over the existing government or any exclusive privileges or preference in matters of commerce." This was repeated in President Tyler's message to Congress December 30, 1842, and in the report of the committee on foreign relations written by John Quincy Adams.

Our country was young in 1842. These were the formative, preparatory years and subsequent development proves that the pioneers of the banner of the square and compass did their full share on the frontiers.

This was the program at the banquet marking the "Seventy-fourth Anniversary of the Coming of Masonry to Hawaii," with Lawrence A. Kerr, Master of Oceanic Lodge, and Wallace R. Farrington, Past Master, presiding:

"When Masonry First Came to Hawaii"—Ed Towse, Past Master, Lodge Le Progres.

"In the Days of Kalakaua"—Judge C. W. Ashford, Junior Warden, Oceanic Lodge.

"When California Entered the Field"—James F. Fenwick, P. M. Honolulu Lodge, District Inspector of the Grand Lodge of California.

"The Coming of Scottish Rite"—Norman E. Gedge 33° Hon. Deputy of the Supreme Council for the Hawaiian Islands.

"Masonry for Character Building"—Chaplain Scott, U. S. A.

"Hawaiian Lodge No. 21, F. & A. M."—Walter C. Shields, Worshipful Master Hawaiian Lodge.

"Honolulu Lodge No. 822, F. & A. M."—George W. Smith, Past Master Honolulu Lodge.

"Schofield Lodge No. 443"—Jay C. Shugert, U. S. A.

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## TRADITION OF KIHAPIILANI.

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[The following tradition of Kihapiilani, differing widely from the generally accepted version connected with the history of Umi, is found in the first volume of the "Polynesian," 1840, as having been "noted down from the mouths of the natives", and published "as affording some insight into the customs of the country at the early period with which it deals. Those familiar with the Story of Umi will notice several points of similarity in this.—Ed.]

In the reign of Liloa, king of Hawaii, father of Umi, Piilani being king of Maui, Kalamakua of Oahu, and Manokalanipo, king of Kauai, Kalamakua took to wife Keleanuihonaaapiapi, a chief woman of Maui who had been stolen and carried captive to Oahu. They had a daughter called Laie-lohelohe who was married to Piilani, king of Maui, from whom descended a daughter called Piikea; a son Lonoapii; a daughter Kalaiheana, and a son Kihapiilani; four children. Kihapiilani lived on Oahu with his mother's brother. Piikea was married to Umi, son of Liloa. Lonoapii lived at Maui with his father.

Kihapiilani's uncle was angry with him because he pulled up and consumed his food. Kihapiilani asked his mother: "Where is my father? This is not my father; he is a man who gets angry at me." His mother replied: "This is not your father; your father is at Maui." The boy replied: "I will go there and live with my father." To this his mother assented. She made ready the canoe, provided the food and said: "Go, you will find your father keeping the *awa kapu*, and no canoe will be allowed to land; if you reach Keawaiki at Lahaina, do not fear if the people attempt to resist your landing; your being afraid will end in the burning up of the canoe with fire. Land on the beach, let all the men remain on board the canoe in charge of her, but go yourself ashore to the large man sitting at the door of the house; he is your father, sit on his lap, and if he asks you whose boy you are, tell him you are his, I am Kihapiilani. If he places you at his left hand, that is your place; there is no land on that side; the right side is the place of lands. There will be two cups of *awa*, the one in his right hand represents your elder brother Lonoapii, the other yourself. He will drink first the cup in his right hand, then that in his left; then take pieces of potato in his right hand and left and eat them in the same succession; then a banana in each hand, eating them in the same order; after which he will eat fish and poi, then the *kapu* will be ended. If he offers you the cup and potato and banana which are in his right hand you will be the heir; if not, you have no inheritance."

Kihapiilani heard the words of his mother, and sailing arrived at Maui, where he found everything as his mother had told him. On landing he found the big man, sat on his lap, and being asked his name said it was Kihapiilani. His father kissed him and seated him on his left, but the boy leaped over to the right side. The father then said to him: "You have taken your elder brother's place"; and without the consent of his father he continued to sit there. The father put out his right hand to take the cup of *awa*, but the son

snatched it from him. Likewise the potato and banana, his father saying to him, "This cup belongs to your brother," etc., but the boy took them for himself.

He constantly conducted himself in this manner during the life of his father. At his death the lands were willed to the elder brother, who was angry with his younger brother Kihapiilani for his efforts to obtain the birthrights. When Kihapiilani went to visit his brother, he ordered the wicker gate of the enclosure to be shut upon him, which caught and held him fast; then a dog was set on him who mangled his skin with his teeth. Kihapiilani struggled hard and broke away and went to the house of his guardian weeping, who asked him: "Why this snivelling and weeping?" He then informed him of what had passed. "Who did this?" "The king, my elder brother." "Bear it patiently," said the guardian. After a long period had passed, thinking all was over and good feeling restored, Kihapiilani visited his brother again. He found him with calabashes of salt water around him filled with small fish, and thinking he might venture to ask a favor, said: "Let me have a calabash of fish." The calabash contents were discharged in his face and he returned home weeping. His guardian advised him to bear it.

Afterwards going to play in the surf, his brother having a fire to warm himself on shore, and being cold Kihapiilani landed first and stood by the fire, whereupon his brother landed and threw the fire all over him, burning his head badly. His guardian advised him to bear it patiently. At another time all the people were engaged in catching squid. Kihapiilani went to take one, but was seized by his brother and struck in the face. His guardian said: "Better kill you outright; let us rebel." Kihapiilani assented. They fought in the Wailuku valley near the present female seminary and Kihapiilani was beaten; all his people were killed; he and his guardian alone escaped. Kihapiilani then returned to Lahaina to dwell. When he had grown large he rebelled again, and was again beaten and all his people killed, together with the guardian.

Kihapiilani only was allowed to escape. He then went to Molokai and rebelled again. They fought on the hill called Pakui, and although the king's order was to kill him, he escaped when the battle turned against him. Kihapiilani ran to the forest, leaped down a precipice into the top of a tree and was followed by a friend who saved him, and gave him a canoe in which he went by night with his wife to Lanai, where he stayed two days. His friend then said: "Let us go to Maui." Setting forth they arrived at evening and went into the woods of East Maui, where they were seen by some fishermen who reported them to the king on his arrival at Maui. The king sent Kalamea, his runner, after him. Kihapiilani, seeing the dust raised by Kalamea, said to his friend: "Here comes the swift man; he can go around Maui in a day." As he approached Kihapiilani said to his friend: "Cannot you pray for us?" "Yes, I can," he replied. The prayer was said, and when ended the runner cut his foot with a sharp stone and fell down; he then bound up his foot with the vine of a convolvulus and went on limping, but Kihapiilani was enabled to keep out of his way. After two days his friend said: "You go to Kula and secrete yourself, and I will return to the king. He did so, and Kihapiilani with his wife went and lived at Makawao. Being cold and having no *kapas* he told his wife to beat *kapa*. She said: "I have no implements. Kihapiilani said: "I will go and steal them." Then his wife made two *kapas*. After this the owner of the log on which the *kapa* was beaten, heard the sound of the hammer, and recognizing it to be his, came and took it away. They had prepared land to plant and Kihapiilani went after potato tops; having obtained a load he met an old man who asked him where he was from. He said "Makawao." "No," said the old man, "all those people are familiar to me." "I am from Kipahulu." "No, I have seen all these; you look like a chief." "I am one." "What is your name?" "Kihapiilani." "Have you a wife?" "Yes." "Go for her and live with me." This done the old man inquired the cause of the rebellion, learning which he condemned

the king for abusing Kihapiilani. "Let me place a stone hatchet of your god and say the prayers, and if it rains, with thunder and lightning your god is propitious and you will have the kingdom." The signs being favorable they went to get timber to build him a house. An old priest said to the chief Kihapiilani: "You will have the kingdom; go down to Hamakuapoko; there you will see a man called Aupuni." This done and the story told, Aupuni performed the ceremony with the stone axe, and the rain, thunder and lightning revealed favor from the god. In the morning Aupuni recommended him to Hoko, a priest at Kleanae, to whom he went, when the same things were repeated with like success. Thence he was recommended to go to Hana, to Owao, a priest, where on arriving with his wife he said: "I am advised by Hoko to visit you." When he had told his story Owao, like the rest, condemned the king. Owao said: "I must get you a surf board." Kihapiilani spent his time playing in the surf until the daughter of Hoolai, chief of Hana, fell in love with him. The priest said to the wife in his presence: "Let your husband take this girl for his wife and you be a servant until he gets the kingdom." To this Kihapiilani objected, but his wife was willing. Next day the girl came and took Kihapiilani while in the sea. Her father was angry, because the girl was to be the wife of the king, and he rejected her. She being expectant the priest advised Kihapiilani to go and address her as though he had something to say, and if she asks you what you want, tell her your arms are aching to plant, but when your food is ripe other people will take it away. Go and ask your father for land; ask for the lands of Honokolani, Waipapa and Wananalua. This done she went to her fther, who ordered a dog baked and fed her. Then she asked for land. He inquired: "What land?" She told him. He said: "No, if you take those lands you take the two hills which are celebrated in war; you will then be rebels." This was told the priest Owao, who said: "I can do no more for you, but your god says you shall have the

land; go and wait; leave the new wife and take your old one." The new wife mourned with love for Kihapiilani.

After this the priest said: "One thing is left for you to do; go to Hawaii where you have a sister, the wife of Umi." This he did, leaving the new wife. On leaving his wife and people he said: "If you see no fires you may conclude I am killed, but if there are many fires lighted, expect to be sent for." Traveling all day he arrived at night at the king's place. The king was in his own house, and his wife Piikea was in the eating house. They entered the sleeping apartment and when his sister returned from the eating house she asked Kihapiilani his name, and when he told her she kissed him and wept. Umi hearing it, was told that his wife's brother had come, and he said he ought not to have come in that style, he should have come directly to me, his friend, but he gave immediate orders to all the chiefs of Waipio to bake dogs and *kalo*, saying: "Let there be *kapu* dogs and *noa* dogs; let there be *kapu* food and *noa* food."

After the wailing had subsided Umi called Kihapiilani to come to his house; a feast was prepared, after which Umi inquired: "Why have you come?" Kihapiilani answered: "I have escaped with my life." Umi asked: "How is it?" whereupon Kihapiilani told him all. When Umi heard this he replied: "Your brother has abused you in a remarkable manner." Turning to his men he said to one: "Run to that side of the island and order the chiefs, head men and officers, to hew out canoes, barb the spears, braid the slings, and be ready at the end of this year, one month after, to fight. Lono-apii of Maui is our enemy." He sent likewise another runner on this side of the island with the same orders, that they might meet in their course. After the men were gone, Umi said: "We shall lose our labor in fighting with your brother. He will hear of your arrival here and will be taken with fear of me and die trembling. This happened; he died and left his kingdom to his sons.

Kihapiilani dwelt with Umi to the end of the year, and in

the following month they sailed to the war and landed at Hana; all the chiefs and people and canoes of Hawaii, and the women and children. Landing a party at Hamoa, they fought with Holai, who drove them back to their canoes, an idol erected in the narrow road frightening them. Afterwards they took possession of the hill called Kauiki, at the extremity of the harbor, from which point they made a successful sally and put Holai to flight, for as they approached the idol, a man by the name of Piimaiwaa struck it with his spear. "What sort of a man is this?" said he. "He does not move," and a second blow convinced them that it was an idol and not a man. They pursued Holai and caught a large man whom they took to be him and carried him to Umi. Kihapiilani said: "This is not Holai; he is a small hairy man." Hearing this Piimaiwaa soon found him and chased him among the *lauhala* trees until dark, when he killed him, wondering at his swiftness of foot for so small a man. On reporting to Umi they sent men with torches and brought him into his presence, where they offered sacrifices and repeated prayers, that the gods might consume the body of his enemy.

Next morning the army, bearing the idols of Hawaii, advanced to the westward, by land, and the king by canoe, until they reached Wailuku, where they fought with the chiefs of Maui and put them to flight. Pao, Hoko, Aupuni, and Owao, the priests who had aided Kihapiilani, said to him: "If Umi gives you the kingdom, do not take it, for we cannot hold it long. Let it be for the children of Umi as long as he lives, that he may help us keep it; but on the death of Umi the kingdom should belong to Kihapiilani. The land offered and refused was finally settled on Kumalae and Aihakoko, whereupon Umi went back to Hawaii.

Kumalae and Aihakoko remained as rulers, with Kihapiilani under them. Aihakoko had a guardian, who, having died, he mourned over his body, and because he could not bear to have it buried he took it in a canoe and gave it to the sharks, but the sharks would not eat it; he then went from place to

place; to Lanai, and to Molokai, but no shark would eat the body. While thus employed he was taken sick and landed at East Maui, where he died. After this Umi died, and Kihapilani, sending Kumalae to Oahu, took possession of Maui. He reigned a long time, oppressed the people, made a road of flat stones all around the island and finally died a natural death.

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## HOW "WASHINGTON PLACE" WAS NAMED

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**I**NQUIRY comes to hand for the origin of the name "Washington Place", by which the residence of Queen Liliuokalani, Beretania street, has long been known. The question is a natural one and suggests itself more particularly, perhaps, to distinguished visitors, since residents, as a rule, become mentally calloused by familiarity with sight and sound, recognizing the fact vaguely with but a passing thought, it may be, as to who was responsible for this historic title and when, or exercise the deeper interest as to the cause which gave it birth.

The ANNUAL for 1899, page 101, in a descriptive article on Emmert's views of Honolulu of 1853, had this to say relative to Washington Place, Cut No. 3, pictured in View No. 6 of the Series:

"This noted building was designed and erected by a Captain Isaac S. Hart—by trade an architect and builder—for Captain J. Dominis during the 'forties'. It took several years in construction, during which time Captain Dominis voyaged back and forth to China, bringing with him sundry material toward its construction. His last trip, in 1847, when he was lost, was to have brought its furnishings. The name Washington Place was given to it by the American Commissioner at the time, Mr. Ten Eyck, and confirmed by the king."

Sheldon's Reminiscences of Honolulu\* is more definite as to the date of its erection, in the following reference:

"The year 1847 saw a marked degree of building activity in Honolulu, the most prominent and costly being the mansion of Captain Dominis. \* \* \* When completed the following year it was formally named "Washington Place," by the American Commissioner, Mr. Ten Eyck, and the title was confirmed by the king."

In tracing back for the confirmation here mentioned, doubtless officially gazetted, an interesting side-light of the cause of the Commissioner's happy thought is thrown upon the matter by an extract from his note on the subject to Mr. Wyllie, Minister of Foreign Affairs, found published in the *Polynesian* of February 26, 1848, with the authoritative notice looked for, which are herewith presented in like manner:

"OFFICIAL NOTICE.

"It has pleased His Majesty the King to approve of the name of Washington Place, given this day by the Commissioner of the United States, to the house and premises of Mrs. Dominis, and to command that they retain that name in all time coming.

(Sgd.) KEONI ANA.

Home Office, Feb. 22, 1848.

"The following is an extract of the note to Mr. Wyllie, from the Commissioner of the United States, on which the King has sanctioned the above notice:

"In honor of the day which gave birth to him, who was 'first in war, first in peace, and first in the hearts of his countrymen' — the great, the good, the illustrious Washington—the United States Commissioner, with the assent of its much esteemed and hospitable proprietress, has this day christened the beautiful, substantial and universally admired mansion of Mrs. Dominis, *Washington Place*.

"Thus let it hereafter be designated in Hawaiian annals, and long may it remain in this distant isle of the Pacific, a memento of the eminent virtues of the 'Father of his country,' and of the enterprise and the distinguished excellencies of its much lamented projector."

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## KAMEHAMEHA DAY OBSERVANCES.

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THE one particular national Hawaiian holiday of the year that now appeals to Hawaiians out of the many that are observed in this territory, official and otherwise, is Kamehameha Day, June 11th, and it is growing upon the community each year with deeper interest.

Originating in 1872 as Commemoration Day, by royal proclamation, in memory of Kamehameha the Great, its special observance for many years was in the annual horse races at Kapiolani Park, with Sunday school and family picnies at suburban retreats as counter-attractions. In this there was nothing that appealed specially to the native race, other than one more day's freedom from toil; it held no feature commemorative of the Conqueror or his mighty deeds, nor could it be said to engender a spirit of patriotism.

This may be said to have been the lacking "spirit" of the day all through the monarchy period. Toward its close, with the organization of Hawaiian fraternal societies, one bearing the name of the noble chief assumed the loyal duty of decorating his statue in the judiciary grounds with flowers and wreaths of *maile* on the morning of his day, each year. From this patriotic act has grown the spirit of loyalty to the memory of ancient Hawaiian celebrities, and pride and interest in the traditions and customs of their times. The introduction of the pageant into our celebrations of late years, as a promotion attraction, has been particularly educational to Hawaiians in this respect, and they enter into the spirit of a performance with enthusiasm and naturalness which insures its success.

The popularity of this feature of what was our Washington's birthday observance, now the Carnival season, led a few patriots to induce the various Hawaiian Societies to unitedly "father" the observance of Kamehameha Day, making it strictly Hawaiian, with a pageant entertainment illustrative of the ancient court customs, religious or other ceremonies, sports and games, with chants, *olis*, dances, etc., whereby the *aloha aina*—*aloha alii* spirit, embodying race pride and patriotism, would become more manifest. To Mr. Edgar Henriques, more than any other one man, is due the credit for this movement of giving this day its particular and appropriate Hawaiian character, and the public interest shown therein indicates a growing popularity with both residents and strangers that is very gratifying.

The day falling on Sunday this year it was observed with special religious services, in Hawaiian, at the historic Kawaia-hao church, in accordance with the custom of Kamehameha Lodge, and joined in by the Kaahumanu and other Hawaiian societies.

Monday's events opened with the parade of the various native societies and lodges at 8:30 a. m., from Aala Park along King street to the judiciary grounds, for the decoration of the Kamehameha statue and literary exercises in his honor. The procession started promptly, and the various organizations presented an imposing sight by their number and the bright colors of the dress of *aliis* and attendants of old, shown in helmets, cloaks, capes and wreaths, worn by certain societies and impersonators of old-time dignitaries. A company of *pa-u* riders strengthened the local color and picturesqueness of the scene.

As the procession massed around the statue, near which was the review stand, in front of the Judiciary building, movie and other cameras kept busy making records for future generations. It was a rare sight with the splendor of ancient court colors, harmonized by the black or the white decorated modern costumes of the women's societies participating. Prominent, as in the last pageant, was a representative of the war-god

Kukailimoku after the pattern of the original feather decorated god in the Bishop Museum, in red and yellow.

As the procession grouped about the statue, the speaker of the day, Rev. J. K. Kamau, of Ewa, took position at its base and delivered an oration on the life and times of Kamehameha which met an appreciative response in the hearts of his hearers by frequent applause, for the speaker was eloquent throughout, in good voice, and graceful manner inherent in Hawaiian speakers. Band and vocal music had their share in entertaining the public assemblage.

Following this event was a series of races at the park, which carried so late as to delay the removal of the bleachers to the Executive grounds in time for re-erection to serve for the pageant performance, for which seats had been liberally sold. As a result, the gathering crowd took possession of each section with a rush as it was erected and held their seats despite authoritative call to give place to ticket-holders. Under the circumstances the management wisely postponed the entertainment till the following night, so that proper arrangements could be made to control the throng and protect those entitled to seats. The audience, estimated at 5,000, soon melted away, to participate, many of them, in the grand ball at the armory. Naturally the postponement was a great disappointment, the hardship of which fell upon the performers and singers ready on hand for their parts. Special electric colored light effect was part of the arrangements for the occasion, which included an illumination of the statue across the street by the new "flood" lighting project of great power.

During Tuesday, the 13th, due preparation of the grounds and seating arrangements were carried through, and as the twilight shadows deepened the people wended their way again to the grounds for the pageant performance, scheduled to begin at 8 o'clock. Unfortunately the evening turned out showery, which discomfited all hands alike in such an outdoor performance, most of whom, however, braved it through till near the end.

This year's pageant entertainment was, in certain features, more elaborate than heretofore, the subject being compiled from incidents in Kamehameha's life and shortly following his death, to portray ancient and modern Hawaii, entitled "Darkness and Light." The historical events are shown in the following program synopsis:

Scene 1 is taken from Hawaiian history at about the close of Kalaniopuu's reign. This old battered and scarred warrior was on a visit to Kau, where he was entertained by Keawemauhili and other chiefs and chiefesses. The entertainment was arranged so as to include the game of *konane*, in which he was very skillful, and took pleasure in displaying. Dancing was another delight of the old chief, and so he was entertained in all his favorite games and dances.

While the entertainment was in progress his *pukauas* were reported returning with the dead body of Imakakoloa, the rebel king of the Puna district, who had opposed Kalaniopuu's reign.

Shortly after this the heralds announced the arrival of Kiwalao, son of Kalaniopuu, and Kamehameha, who were on their way to the *heiau* to participate in the sacrificial ceremonies.

Scene 2 presented the *heiau* of Pakini and the priest, ending with the sacrifice of Imakakoloa.

On the eve before the sacrifice of Imakakoloa, Kamehameha's high priest told him that if he would be brave and enter the *heiau* at the time of the sacrificial ceremonies in the morning and take part, by taking up and placing the body of Imakakoloa on the altar while Kiwalao was in the act of taking up the pig, and thus precede him in this part of the ceremonies, he, Kamehameha, would be king and ruler of Hawaii. This Kamehameha carried out and the act was declared one of treason by the followers of Kiwalao, as the custom was that all ceremonies of this nature should be performed only by the chiefs themselves or their heirs, and in this case Kiwalao was the heir of Kalaniopuu, and the only one to have performed the ceremonies. This deed of Kamehameha caused him to be ordered away from Kau by Kalaniopuu; he then left for Kohala.

Scene 3—After the death of Kalaniopuu his body was taken to Honaunau, Kona, which was the ancient custom; but

instead of landing there, Keoua and Keawemauhili proposed that they continue on to Kailua, and from there bring the dead chief's body overland to Honaunau, which would mean a declaration of taking all that part of Kona for Kiwalao's followers. Word was sent posthaste to Kamehameha at Kohala to return to Kona as the followers of Kiwalao were causing trouble. Here the scene portrays Kamehameha and his high priest in the temple invoking the war-god "Kukailimoku" for the defeat of Kiwalao in battle.

The district of Kauiki on the Island of Maui was before this time under the control of the King of Hawaii, the late Kalaniopuu. This same portion was recaptured by Kahekili, King of Maui, on the death of Kalaniopuu. This was another affair for Kamehameha to take a hand in, and so, while he was in the *heiau* with his priest they also invoked the war god for Kamehameha's conquest of Maui.

Scene 4—The purification of the temple, a scene presenting the ancient custom of purifying the temple after sacrificial ceremonies and the lifting of the tabu. This scene showed the purification ceremonies, finishing up with the fire dance.

Scene 5—The arrival of the missionaries and their followers, meeting Queen Kaahumanu and King Liholiho, Kamehameha II. This scene portrayed the missionaries requesting leave to teach the Gospel in the islands, with Queen Kaahumanu in counsel with the chiefs and the granting of the request.

Scene 6—The classes being taught the alphabet and the tonic-sol-fa. Natives bartering for goods shown, closing with the singing of the first hymn in Hawaiian by the natives.

Between the scenes a series of modern Hawaiian songs were sung by the Young People's League of some two hundred voices, under the direction of Charles E. King.

The unsettled weather naturally caused a few hitches in the performance, but there were important points unfortunately weakened by lack of action in several places, and improper grouping of attendants in the sacrifice scene which marred the whole thing. One is not disposed to be critical with amateur performances, but a word of caution to those responsible for the selection of subjects and the various points desired to be presented may not be out of place, that the plays be duly

balanced, and without ground of offence. Speaking for a number of others we feel there is too much made of the *hula*, as presented. There are *hulas* that are graceful, innocent and entertaining, without the necessity of flaunting the most indecent of the category as is being done in public before ladies and those of tender years. The reason given that tourists demand it is no excuse for offending others.

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## THE POPULARITY OF HAWAIIAN MUSIC AND MUSICAL INSTRUMENTS.

BY W. D. ADAMS.

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**I**N MY recent trip through the United States I visited among other places, San Francisco, Los Angeles, Ocean Park, Venice, Santa Monica, Chicago, Philadelphia, Atlantic City, New York, Coney Island, Newport, Larchmont, Boston, Old Orchard—coast of Maine; York Beach, Rye Beach, Hampton Beach, Salisbury, Gloucester, Manchester-by-the-Sea, Beverly Farms, Nantasket, Marblehead. At all of these summer resorts the orchestral music featured in the hotels and casinos was in every instance Hawaiian. All cabarets featured Hawaiian vocal and instrumental music. At every theatre in the cities I visited, with the exception of one, I heard Hawaiian music in the orchestras as well as from the artists. Those who visited the San Francisco Fair will agree that that one institution is more responsible or the craze for our music and instruments that is now sweeping the country than any other agency. The medium through which our music gets its best advertisement, no doubt, is through the Victor Talking Machine Company's efforts in this direction. The writer spent a week at Atlantic City, N. J., where he attended the jobbers' convention of this company. Here he met the leading Victor jobbers from all cities throughout the States. These men wholesale Victor records and machines, as well, to dealers in their localities. In some instances they have as many as three and four hundred

dealers whom they supply with merchandise in this line. I was asked to talk on the Hawaiian Islands at this convention and took this opportunity to ask this body of men what records had had the biggest sale during the past twelve months. Every jobber was unanimous in stating that the Hawaiian records placed on the market the last year had reached larger sales with them than any other popular records. This in itself goes to show that Hawaiian music has a wonderful charm when you consider the thousands upon thousands of people on the mainland who are purchasing talking machine records every month. The Victor Talking Machine Company alone has made, up to date, one hundred and forty-six Hawaiian numbers both instrumental and vocal. This means a great deal more when you consider the fact that there are many other talking machine concerns who make a practice of putting out Hawaiian numbers to their patrons.

Another source of featuring the Hawaiian music is the pianola. The Aeolian Company, which is the manufacturer of this instrument, has made practically all of our songs and other music, in music rolls, and in every instance where I visited dealers handling these rolls they told me that their sales in this class of music rolls alone were enormous.

I was very sorry to find in many instances that there are large numbers of musicians who are "palming themselves off," as the saying goes, as genuine Hawaiians, when they are not. For instance many Spaniards and Mexicans and in some cases negros are doing this, which means of course that their music is not genuinely Hawaiian, and their influence on the minds of the public for or against our music is not the best. The instruments they use are practically in every case not Hawaiian,—in many cases the Russian Balalaika was used which is a simple illustration of the lengths to which they will go to take advantage of the craze now extant for our music and instruments.

Another form of deception of the public which fell under my notice, and which made me "red hot" against the backers of this form of "dollar-grabbing," was the form of so-called Hawaiian songs now being placed before the American public. A song that illustrates this point is "Oh, How She Could Yacki Hacki Wicki Wacki Woo! (That's love in Honolulu)". Can any of our true citizens read those words without a feeling of disgust for the concern which would go so far to make a few dollars? This song has been published by one of the largest music concerns in the States, and we should be forced by our pride in all things Hawaiian to resent such practices and do our utmost to the end that *real* Hawaiian music shall reach around the earth and that we may not be placed in the ridiculous light that we are rapidly approaching through such methods.

In the case of one publisher who got out a particularly rotten so-called "Hawaiian song"—the writer sent a book of genuine native melodies, stating that if this man felt the spirit moving him to write Hawaiian songs, to please have some consideration for us, and use the real melodies, at least,—also to make an attempt to find out a few genuine Hawaiian words instead of making them up!

The songs that are now being credited to us are for the most part nothing but ordinary American ragtime, and as such will soon perish, as do all such numbers. An illustration of how long a real Hawaiian melody will survive is found in our famous "Aloha Oe." And right here let me say that a music publisher in New York said to me that there has never been a song in American musical history that has equalled this one for popularity of the lasting kind.

I visited one cafe in Coney Island called "Reisenwebbers' Hawaiian Room". On the walls was painted palm trees and mountain scenery, featuring Diamond Head. One corner of the room contained a small grass house. The ceiling was dark blue with gold stars, and the lighting effect was rather soft,

being very pleasant, but the music was miserably poor indeed, only one Hawaiian playing a guitar, and Spaniards playing piano and mandolins.

The writer has published a great many genuine Hawaiian folk songs, and is endeavoring to interest all music houses throughout America in these numbers. Many of these songs are meeting with great success at this time.

The *ukulele* has been responsible for creating a great deal of interest in the Islands, and also has popularized our music to a great extent. Unfortunately, the demand for this little instrument has been so great through the States that the concerns in the Islands have been unable to supply the market fast enough. This condition has given unscrupulous manufacturers everywhere the opportunity to put on the market an imitation of the *ukulele*, being machine made, of cheap American woods, the result of course being a poorly made and poorly toned instrument. The *ukulele* has come to stay, and the people of the Islands must endeavor to keep the standard of their instruments up to the very highest, as well as the price. Our local instruments are made mostly from *koa* wood, and are also hand made.

It is the natural course of events that as soon as any line of merchandise becomes popular, there are hundreds of concerns who stand ready to commercialize it. There could, of course, be no sentiment connected with the instruments or their manufacture. We, here in the Islands, who are interested in these instruments and their future, should advertise, and sell only, genuine Hawaiian products. There will always be a class of people in the States who will demand a genuine Hawaiian article, and this is the trade we should endeavor to supply.

The writer understands that there have been several people here from the mainland who have had an idea of forming a combine to control the output of all locally made instruments. This I am not in favor of, and neither should any loyal resident of these islands be, as there should be just as much indi-

viduality in *ukuleles* as in violins. Each maker in the Islands has his own ideas as to how these instruments should be made, and his name is responsible for the sale of his instruments. I found that many of the large houses in the States showed great preference to certain local manufacturers.

There is no question in my mind but that the Hawaiian music has done more to popularize these islands than anything else that we have done. We should at all times try to maintain the highest standards only, in our instruments and music, and wherever the opportunity presents itself to recommend same to our friends, to insist upon their getting the originals.

## HONOLULU'S FUTURE WATER SUPPLY

BY G. K. LARRISON,  
Superintendent of Hydrography, Territory of Hawaii.

### PRESENT PUBLIC SUPPLY AND CONSUMPTION.

**T**HE per capita consumption of water furnished by the water works department of the City of Honolulu is said to be about 325 gallons per day. It is estimated by the water works officials that during 1915 50,000 persons were served, making a total daily supply of about 16.3 million gallons, while during 1914 the daily supply was about 14.3 million gallons, showing an increased daily consumption of about 2.0 million gallons.

The city's supply is furnished from three sources:

Artesian wells, about .....	13.0 m.g.d.
Springs (Manoa, Makiki and Palolo), about.....	.3 m.g.d.
Surface water (Nuuuanu reservoirs), about.....	3.0 m.g.d.
Total.....	16.3 m.g.d.

Ignoring the small amount of spring water, there remains the proportion of about 4 to 1 of artesian over surface water.

The records of the water works department also show that

during dry periods the consumption increases to a maximum of about 19.5 million gallons per day,—an increase of artesian water alone,—as the surface water supply is definitely limited.

#### PRIVATE SOURCES OF SUPPLY.

The Territorial Water Commission has, for the past year, been collecting all available data and has been making measurements and experiments relative to the *total* amount of artesian water flowing or being pumped from the underground supply of the area between Fort Shafter and Diamond Head.

Available data indicate that an average of at least 35 million gallons of artesian water per day is flowing or being drawn from the underground supply, and that at least 20 million gallons of this water is being used for agricultural, mechanical or other commercial purposes. These 20 millions may be very approximately segregated into the following classes of usage:

Agricultural purposes.....	15 m.g.d.
Mechanical purposes.....	3 m.g.d.
Other commercial purposes.....	2 m.g.d.

#### ANNUAL WATER SHORTAGE.

During some period of dry weather of nearly every year, the demand increases until the water works department is forced to limit garden and lawn irrigation where meters are not used, to a few hours per day, primarily on account of limited capacity of pumping plants and of surface water storage. During this same period the private sources undoubtedly deliver abnormal quantities.

#### THE DIMINISHING ARTESIAN SUPPLY.

Reliable data are now available which show that the artesian head or level has for many years been dropping steadily at a rate of about two-fifths of a foot per year. There have been wide seasonable variations in this head, but the mean level, year after year, has steadily been lowered until it now stands less than thirty feet above sea level and wells which

were originally flowing above the ground now have to be pumped. Should this rate of decrease in head continue,—and there is no apparent reason why it should not,—within a period of about fifty years the artesian water supply would be exhausted.

#### WHAT IS THE REMEDY?

Mr. T. F. Sedgwick, an expert on underground waters, has estimated that the underground water supply of the area of Honolulu proper, can furnish about 25 million gallons per day without lowering the artesian head, or, in other words, by diverting part of the water now used for wet land irrigation and for mechanical purposes to the city water supply, and conserving the remainder, a sufficient amount of artesian water will be available for a city of nearly twice the present population of Honolulu proper, without endangering the future artesian supply.

Here arises the question: How can this change be brought about without injustice to private rights, and what use will be made of lands now used for duck ponds, taro and rice growing?

As the population grows the large areas of such wet lands as we have in Moiliili and Waikiki which are largely served by artesian water, will be filled and reclaimed and cut into residence and business lots. The first steps have already been made in this direction in the form of Governor Pinkham's Waikiki reclamation project. The Bishop Estate is now planning to open for residence lots within a few years, tracts of considerable areas which are now used as taro and rice lands. The Estate is only awaiting the termination of existing leases to make this change.

The Board of Health will undoubtedly require the elimination of wet land irrigation in residence districts, as rapidly as this can be reasonably brought about, because of the mosquito pest, if it follows the practice and profits by the experience of mainland cities.

These areas, used for residence and commercial purposes, will require but a small part of the water formerly used for irrigation.

A large part of the three million gallons per day now used for mechanical purposes can be acquired by the city at a reasonable cost and used to serve the low-lying parts of the city.

#### SURFACE WATERS.

Fortunately, nearly all of the perennial streams of the leeward slope of the Koolau range are located within the limits of the city proper, or are between Fort Shafter and Diamond Head. These include the Kalihi, Nuuanu, Manoa, and Palolo streams, of which the Kalihi and Manoa have the largest discharges.

Practically all of the low-water flow and a large part of the flood flow of the upper Nuuanu stream and valley are now utilized by the water works department. Most of the low-water flow of the Palolo Stream, which is spring water, is also diverted in the upper valleys of Pukele and Waiomao for the city supply.

The Kalihi and Manoa streams are used almost entirely for irrigation and their immense floods not only waste into the sea but cause much damage in the lower valleys. The storage of a considerable part of the flood waters of these streams is feasible, and as the agricultural areas now irrigated by the low-water flows are converted into residence lots, this water may also be used, with the necessary purification works, to augment the city's supply.

#### THE WAIAHOLE WATER.

Under the terms of the water license issued by the Territory to the Waiahole Water Co., Ltd., the Waiahole waters, which are now diverted by the Waiahole tunnel and which are all spring waters, will be available for city use after a period of about thirty years. The license<sup>\*</sup> provides in sub-

stance that after thirty years the Territory may take for public use four million gallons per day, after forty years six million gallons per day, and after fifty years all the water. These waters to be delivered to the government at the south, or Waiawa, portal of the tunnel at a cost fixed on a pro rata basis of the actual maintenance and operation cost of the tunnel. A pipe line and conduit system approximately twelve miles long can deliver this water to elevations of 550 feet or less in the city of Honolulu at a low cost per gallon.

#### THE FUTURE SUPPLY.

The future supply of the city must come from the following sources:

1.—About twenty-five million gallons per day of artesian water which must be acquired or controlled by the Government.

2.—About fifteen million gallons per day from surface water sources, a large part of which must be stored in reservoirs and all of which should be purified.

3.—The Waiahole spring water which probably totals about seven million gallons per day and which will begin to become available in thirty years. This water will be extremely valuable on account of the high levels which can be served by it.

The writer estimates that, including the Waiahole water, sufficient water is available within the Honolulu basin between Fort Shafter and Diamond Head to serve at least 200,000 persons, if all sources are properly conserved.

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THERE was a time when a 4,000-ton cargo of sugar from this port was heralded as breaking the record. With larger crops and larger steamers to handle our product, cargoes have gone far beyond the 10,000 limit. Two noteworthy sugar shipments this past season were that of the *Mexican*, in March, with 14,051 tons, and the *Texan*, in April, with 14,200 tons, both for San Francisco.

## ORGANIZING A KIND THOUGHT.

BY D. L. MACKAYE.

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A number of years ago—though not so very many—when the present Governor Pinkham was president of the board of health of Hawaii, it was found necessary to survey the ravages of tuberculosis, a disease which to that time had received little attention. A commission was appointed. In an unofficial way it investigated and made a report. The report was alarming. Tuberculosis was a graver danger than was believed, although since then it has been shown that even that estimate was short of the mark. Mr. Pinkham referred the report to the various counties and urged them to do something to remedy the situation.

There was no answer from Honolulu until several years later, from Kauai not until the present day, and from Hawaii not at all, so far as county government went.

But the Maui county supervisors had more vision. There was land available on the slopes of mighty Haleakala and some money that could be spent. The territorial government lent a little bit more. A doctor was employed, a nurse secured. The beginnings of the Kula Sanitarium were made at Waiakoa, on the side of the “House of the Sun,” an appropriate site, for medical science has yet to find a substitute for the sun and fair winds in its combat with consumption.

This first attempt at a sanitarium was a modest endeavor, a little shack protected with canvas, alone in the midst of a rather desolate countryside. A few patients were admitted. The fairy godmother of this institution was the kind thought that lay behind it. It’s benediction never seems to have left it. It has grown, assumed a greater work and expanded into greater usefulness, but the original sentiment surrounds it yet.

Now, when all the counties except one are struggling to put their anti-tuberculosis contributions on an effective basis, Maui’s campaign is established around its county farm, the Kula Sanitarium. It was the willingness of its little govern-

ment six years ago to do what it could with what it had, unafraid to expose its paucity of finances in its ample good-will, that made it possible.

Several years later a tall man, intensively active, careless about many things not connected with his immediate business, efficiently dressed, motored up to the struggling little settlement on Haleakala, hauled out his trunk, deposited his traps about the buildings where the rain would least drip on them, and assumed charge of the destinies of the sanitarium. This man was Charles Paul Durney, M.D., come from a government physician's post on Oahu.

The fairy godmother's benediction held good. Doctor Durney held within him the faculty of thinking in a kind way, the one essential towards congruity with the sanitarium's tradition.

Doctor Durney became also government physician for Kula, the wide territory that hangs about the slopes of the greatest extinct volcano in the world, a district full of empty places, bad roads, isolated settlements and, as he soon found out, the ills to which flesh are heir.

What happened is best expressed in Doctor Durney's own humorous words some years later—"What with looking after the sow's diet, struggling with the eccentricities of misfit lumber, teaming and hauling, I don't know how I look after my patients."

Perhaps no one does. No one who has been to Kula has ever found more than one formula of operation. When there is something to do, let's go and do it. Doctor Durney comes in from his chicken farm to relieve a hemorrhage, goes from the bedside to the problems of his dairy farm, or to respond to a distant call, in a never-ending incoherence of action.

There was only one character that Kula could have prospered under, and this physician, by the kindness of fate, had it. A scientific organizer would, in all probabilities, have been the death of the effort. There was nothing to organize except the

kind thought that started it, barren material for the rule-of-thumb.

Now Kula possesses broad acres contributing toward its support, pretty buildings for its sufferers—largely the cooperative work of several plantations toward its efficiency—the medical and surgical conveniences it needs. It is, in short, the sanitarium it set out to be, yet there is not the slightest deviation from the original spirit.

Medical ethics prohibit much notice to a living practitioner, however profuse may be the tribute to a practitioner dead. Doctor Durney's work on Haleakala, therefore, must have scant notice. It is similar in intent to his work as superintendent. Late at night his auto bumps over the ruts to some remote settlement whence has come that call that may not be ignored.

Sometimes the call is rightly given. Often it arises from the petty fears that have no basis and he bumps back over the same roads, as serene as when he came.

In the organization of kindness, loss of time and loss of sleep, being that they attend on fine intent, are assets to the business.

So Kula grows.

The following report on the number and class of buildings of Honolulu proper in 1868 is of interest as showing the changes that have taken place since then. This was compiled June 18th of that year, covering the area from the waterfront back to School street, and from the Nuuanu stream to Alapai street, in width.

Frame buildings .....	1,633
Grass houses .....	104
Frame houses with grass roof.....	50
Buildings of stone base with slate roof.....	40
Buildings of stone base with shingle roof.....	103
Brick buildings .....	11
Frame buildings with slate roof.....	11
Adobe buildings with shingle roof.....	4
 Total.....	 1,956

## HAWAII'S TOBACCO-GROWING STATUS.

BY JARED G. SMITH.

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CIGAR leaf tobacco has been grown spasmodically on Hawaii during the last nine years, with varying success. The last crop of commercial proportions was produced in 1913, and a small one in 1915. These experimental plantings have all been in Kona, from Hoopuloa to Keauhou. The larger and more successful were at Keokea and Honaunau, a few miles south of Kealakekua Bay, where the land seems especially adapted to this crop.

The Kona Tobacco Company, pioneer in this industry, has now passed out of existence. In its place a new concern, the South Kona Tobacco Company, has been organized, which will continue operations at Keokea and Honaunau. A crop of 100,000 pounds is to be grown during 1917.

Kona wrappers have now made a place for themselves in the domestic market, methods of curing, fermenting and packing the product are now better understood than in the beginning, and the same group of investors who started the first experiments are back of the new enterprise. If there is anything in experience, the industry should become a paying one.

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OUR RECENT visit to Maui presented an opportunity that was gladly availed of to further the suggestion in last year's ANNUAL toward the formation of an Historical Society for that island as had been done on Kauai, a movement also urged by Hon. W. O. Smith upon its leading citizens. Not only is Maui a rich field of historic interest from a political standpoint, but in the record of its commercial and agricultural development, in which Captain Jas. Makee, Father Green, the Gowers, Baileys, Hobron, Alexanders, Torbert, Unna, with other names that might be found, would furnish personal reminiscences of deep interest that should be worked intelligently before it is too late to gather up the fragments from those that could now furnish valuable data thereon.

## FIFTH ANNUAL CIVIC CONVENTION.

BY ARTHUR LORING MACKAYE.

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IT WAS a "Homecoming", that distinguished the session of the Fifth Annual Civic Convention, when it convened at Hilo on Sept. 21-23, 1916, for it was in Hilo, Island of Hawaii, that the civic convention idea germinated and had its birth in practical action; action which has been continued from year to year and has won a large measure of success in binding closer the feeling that what is best for the Territory at large is best for each unit in the Island group.

Of all the Civic Conventions held since the first band of enthusiastic delegates buried the hatchet in front of the Hilo Hotel, four years ago, the fifth convention, held in Masonic Hall in the Crescent City, has the record to date of the busiest and most practical of them all, added to which the delegates from the other islands were the recipients of a hospitality which one and all declared could not be exceeded. There were dances and banquets, entertainments by the Ad Club and parties; there was a comprehensive trip to the Volcano of Kilauea and a trip through the wonderful wilderness of Puna; there were picnics and railway journeys, and the visiting ladies of the delegations were welcomed in a spirit of sisterhood which made it all worth while, especially to the hosts.

When the steamship *Mauna Kea* reached Kuhio wharf in Hilo Bay, it was met by a committee of citizens with automobiles and every delegate was taken to prearranged quarters.

Following the registration of delegates at Masonic Hall the first session of the Fifth Civic Convention was called to order shortly after 10 o'clock by William McKay, president of the Board of Trade of Hilo, and chairman of the Convention Committee. Mr. McKay was first chosen temporary chairman and upon organization of the convention was elected its permanent chairman. In the same fashion Secretary E. N. Deyo, of the Board of Trade, was made temporary secretary and then

elected as permanent secretary, while J. W. Bains was retained as the official stenographer of the convention proceedings.

All through the deliberations of the convention the Ad Club delegation injected a note of joyous comraderie, while its members, led by President W. R. Farrington, took a leading part in the discussions and determinations reached upon all subjects acted upon. Altogether, there were 105 delegates from those sections of the Territory other than the Island of Hawaii. The delegates from Hilo, Kohala, Kona and Puna made the convention a most representative one. The delegates were divided as follows: From the Island of Oahu, 76; from the Island of Maui, 19; from the Island of Kauai, 9, and Governor L. E. Pinkham representing the Territory at large.

The credential committee appointed consisted of one member from each island and C. C. Kennedy of Hilo, at large, as chairman; the other members being Col. E. H. W. Broadbent, of Kauai; R. A. Wadsworth, Maui; D. E. Noble, Oahu, and Arthur Mason, Hawaii. Following the report of the credential committee Secretary Raymond C. Brown, of the Chamber of Commerce of Honolulu, called the roll of delegates and the convention was ready for business.

President William McKay made the address of welcome, which was greeted with hearty applause, and was responded to on behalf of the visitors by George W. Smith, president of the Chamber of Commerce of Honolulu, which again was applauded. Following the addresses C. H. Heiser moved for the appointment of a committee on resolutions, whereupon President McKay named the following:

Hermann Rohrig, Kauai; E. A. Berndt, Oahu; Daniel Case, Maui; Lawrence M. Judd, Oahu, and Rev. George Laughton, Hawaii, chairman. This was the hard-working committee of the convention as all resolutions were referred to it from the floor during the several sessions of the convention.

When the important business of providing for resolutions was completed Chairman McKay introduced Governor Pink-

ham, whose "Foreword" in the shape of an interesting paper dealing with matters of great moment to the Territory was the first paper read at the convention in the course of the many which were considered. After dealing with the importance that such a Civic Convention might be to the Territory by determining upon a course of action and legislation, Governor Pinkham went into questions of statistics regarding crops, lands, homesteads and business. He told of the efforts to establish National Parks on Haleakala, Maui, and surrounding the Volcano of Kilauea, and of what important assets the mountains and valleys of the Islands are to the Territory. He spoke in the strongest manner in favor of the National Guard of Hawaii and referred to the great military stations on Oahu, which should be supplemented by the Territory with its Militia. In conclusion, he said in part:

"What is our duty? Is there any way of avoiding it were we so disposed? Shall we remain here simply to be protected or shall we join and not only help in our protection, but help protect the whole United States of America?

"We have among us Esaus who would sell their birthright and that of the whole community for a mess of pottage; and Judas Iscariots to whom thirty pieces of silver would justify the sacrifice of our country; and we have Benedict Arnolds, who would drag down the high-spirited to a spy's death. You can spot them.

"I stand by the National Guard of Hawaii. It is the expression of the Territory of Hawaii for loyalty and the power of the United States of America. It must be supported, no matter what the cost to the Territory added to the contribution of the National Government, until it is thoroughly trained, drilled and practiced and thereafter continued until available as an auxiliary to the Hawaiian Department.

"This government has acted under consultation with the commanders of the departments and will so continue to act. The Territory of Hawaii must prove herself American, ready to face the world and its problems as they exist in fact and not in theory.

"And now, all honor to those who love peace, seek peace and hope peace, but more honor to him who prepares to compel peace." (Long and continued applause and cheers.)

When the applause had died down Governor Pinkham asked all present to rise, and when all were standing he said:

"I wish to call for cheers for the men of Hawaii who are to assist in putting the United States nation in its proper place in relation to the other nations of the earth."

Three hearty cheers were then given and three more for the Governor.

The report on permanent organization of the Civic Convention, prepared by a committee named at the Kauai convention, was the next business taken up. The report was presented by Raymond C. Brown, of Oahu, as a member of the committee, although he stated that he opposed the idea of a "cut and dried" organization of the Civic Convention. A rather heated discussion followed on this report and Mr. Brown moved that it be tabled, which was seconded by Mr. Case, of Maui. W. O. Smith, of Oahu, opposed such summary action and finally moved an amendment that the report be referred back to the committee to report at the next convention, if deemed necessary, which amendment was duly carried.

Another hold-over committee report was then taken up, namely the Committee on Highways Act. This committee, as explained by L. A. Thurston, had prepared an act which was submitted to the last legislature, but the act did not pass. The report of the committee was then summarized by Mr. Thurston and accentuated in a most emphatic manner the necessity for preserving the roads of the Territory after they were built by establishing the cantoneer system. Speaking especially to the delegates from the Island of Hawaii, Mr. Thurston said:

"It is unnecessary for me to tell any resident of Hawaii what has become of the \$1,000,000 spent on the roads of this island. These splendid roads are going so fast that in another

couple of years they will be as bad as they were before that sum was spent."

W. O. Smith, W. R. Farrington, Dan Case, Ed Towse and others spoke on the report, congratulating Mr. Thurston upon the work of his committee and emphasizing the need of carrying out its provisions. Mr. Farrington suggested that all should get behind the proposed bill in the next legislature to carry out the provisions of the report; also, that every effort be made at once to secure the adoption of the cantoneer system by the counties.

There was a most interesting discussion upon this report and resolutions were passed favoring the suggested system and that a committee be appointed in each county to agitate for this improvement in the method of keeping the roads in repair. The delegates then adjourned after a busy morning session to "See Hilo Grow."

The question of "roads" occupied a large part of the afternoon session of the first day. Hon. Norman K. Lyman read an exceedingly interesting paper on "Good Roads," and received a vote of thanks. A long and heated discussion took place on the question of adopting the resolution approving Territorial supervision and building of roads, some of the delegates objecting to the Territory spending money for local roads, thus taxing all. The motion, however, finally carried by a large majority and was then made unanimous.

C. R. Forbes of Oahu proposed that the convention go on record as in favor of federal assistance in the construction of roads on Hawaii. Mr. Townsend proposed that the convention go on record as being opposed to the issuance of bonds for road building. Mr. Horner stated that such a matter was "up to the people." Neither resolution carried.

During the rest of the afternoon many resolutions were acted upon, including one by Mr. Berndt asking for a cruiser for the Hawaii Naval Militia and that one of the cruisers of the new fleet be named *Hawaii*.

September 22 was a busy day for the convention and resolutions endorsing the work of the Promotion Committee and for an appropriation from the next legislature for the establishment of a commercial course in the College of Hawaii, were carried.

Dr. H. B. Elliott, chairman of the Hawaii County Fair Committee, read a most interesting paper upon "County Fairs and Their Organization," which received a vote of thanks.

"Transportation" and "Civic Betterment," were the subjects of a most comprehensive paper by Superintendent Charles R. Forbes, of the Department of Public Works, which met decided approval.

Among other important papers read at the sessions of the convention on Friday and Saturday were:

"The National Guard of Hawaii and Its Advantages to the Territory," by Brig.-Gen. Samuel I. Johnson; "Health and Sanitation," by Dr. J. S. B. Pratt, president of the Territorial Board of Health; "Promotion," by Emil A. Berndt, chairman of the Promotion Committee.

Other papers were also read, especially one by Dr. F. S. Trotter, chief quarantine officer at Honolulu, on the subject of menace to health by rodents and the danger from plague infection, read by Chief Sanitary Inspector D. S. Bowman, of Hilo.

Upon the wind-up of the business sessions of the Fifth Civic Convention on Saturday the relaxation time came and from then on, until Monday afternoon, when the delegates sailed away in the *Mauna Kea*, their time was taken up in "seeing the sights" and then seeing "more sights." From one and all came the expression of satisfaction over good work well done, which will bear fruit in the coming session of the legislature, and of appreciation of the welcome given the visitors by the people of Hilo and Hawaii.

"And until the next Civic Convention, aloha."

## RETROSPECT FOR 1916.

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### SUMMARIZED CONDITIONS.

**M**ATERIAL prosperity may again be said to be the key note of Hawaii for the year 1916, now drawing to a close. This is so evident to even the casual observer that it must be acknowledged we live in a favored land. Not only have we been blessed with an exceptional year's weather, with freedom from serious epidemics, though menaced by the cholera scourge of the east in the frequent arrivals from Japan, where it has prevailed for several months, but the success of our agricultural enterprises, limited as they are in variety, have nevertheless been eminently successful in volume, so that with the enhanced rates which have governed the market throughout the year has rendered it the banner year in value of domestic exports.

This increased agricultural and commercial prosperity, attributed very naturally as the benefit Hawaii is deriving at the expense of war-stricken Europe, is the more noticeable through the activity in the building trades, notwithstanding the increased cost of material, and frequent and large sales noted among the real estate transactions at rapidly advanced figures as will be shown more fully later under the respective divisions to be dealt with.

In addition to this, Hawaii is favored as being in the lime-light of publicity as never before, the result largely of systematized promotion labors of the past few years, and the effort of appreciative visitors to acquaint the traveling world with the delight of climate, interest of people, and remarkable scenery and volcanic phenomena of these islands as worth-while tourist attractions. Passenger traffic has taxed the capacity of our regular liners, and has brought the great Hill steamships into the service, with the outlook of one being placed permanently on the run between San Francisco-Los Angeles-Hilo-Honolulu route the coming year. It was unfortunate for

Hawaii that the Pacific Mail line withdrew when it did, else the tourist travel would have been much greater. Honolulu gave a welcome demonstration to the *Ecuador* on her arrival in September last on its re-opening of the Pacific Mail service; a joy expression of reunited interests. In the same way was the welcome ovation to the '*Great Northern*' upon her return this last November with her party of distinguished visitors to whom was given a typical key of freedom to the city.

The foregoing favorable condition is enhanced by the prospect of its being but the forerunner of a period of continuous activity in buildings and other public improvements now that the long-planned federal building site has been settled in favor of the civic center idea (the Irwin site), and has disposed of its Mahuka property for business structures.

#### POLITICAL.

Both the primary and general elections throughout the islands lacked much of the enthusiasm that usually prevails on such occasions. Being a Presidential election year may have had something to do with the local apathy noticed, for though Hawaii as a territory has no vote, it is nevertheless intensely interested in the nation's choice for chief magistrate over the people.

For delegate to congress, Kuhio had a rival aspirant for Republican honors in A. L. Louisson at the primaries, beside his old-time Democratic opponent, but at the general election it narrowed to these two old party antagonists, and resulted in Kuhio's victory again, the total vote standing: J. Kuhio Kalanianaole (R.) 7,702, L. L. McCandless (D.) 5,637.

For Senators: Oahu returned two Republicans, R. W. Shingle and S. P. Correa, and one Democrat, M. C. Pacheco.

Maui selected H. A. Baldwin and G. P. Cooke, Republicans.

Hawaii chose Robt. Hind and G. P. Kamauoha, Republicans.

Kauai returned J. H. Coney, Republican.

With the hold-over members this gives one lone Democrat to the senate, while the lower house will have six; five from the fifth district of Oahu, and one from Hawaii.

For Representatives: Oahu—Lorrin Andrews, C. H. Cooke, J. K. Jarrett, C. N. Marquez, T. H. Petrie, G. P. Wilder, R. Ahuna, J. Kalana, D. M. Kupihea, W. E. Miles, W. F. Mossman, E. K. Fernandez.

Hawaii—B. H. Kelekolio, N. K. Lyman, E. da Silva, John Leal, H. L. Holstein, E. K. Kaaua, G. K. Kawaha, H. L. Kawewehi.

Maui—Jno. Brown, Jr., Levi Joseph, M. C. Paschoal, A. F. Tavares, Ed. Waiaholo, J. J. Walsh.

Kauai—J. K. Kula, J. K. Lota, C. H. Wilcox, J. de C. Jerves.

#### PUBLIC IMPROVEMENTS.

Attention has been and is being given to road work throughout the islands both by territorial and county authorities. In Honolulu the improvement of the Auwaiolimu tract (the front and northern base of Punchbowl), is nearing the close of work provided by legislative appropriation of \$41,000 as its share, covering grading, street and sewer work, curbing, etc. The total length of streets in this tract, approximately four miles, will have substantial pavements.

The Makiki Round Top road is progressing slowly with prison labor. This is a four-mile road of twenty feet width and easy grade which, besides promising a delightful scenic driveway to Tantalus, will benefit homesteaders in providing an outlet for the residence lots in that section.

Work on the Aiea homestead road, above the Honolulu Plantation, is only beginning, though its lots were sold long ago. This is to be a winding road of six per cent. grade, one and a half miles in length.

Reports of like work on the other islands are of progress. The Hilo-Waiakea extension road, long mooted, for its home-

steads, delayed for various causes, is being relocated and surveyed.

A new direct road connects Lahaina with Lahainaluna, at an outlay of \$17,000.

The Kewalo reclamation project is practically finished.

Work under the loan fund commission on the different islands embraces the following: For Oahu: Installing a sewer system in the Puunui district; construction of a steam and electric pumping station at Kakaako; opening of the Hillebrand Glen water project; with preliminary work on extension of water mains and further sewer improvements.

On Hawaii: Macadamizing the belt road in the Keau-moku and in the Kukaiau sections is being done.

On Maui: Beside the Haiku-Kuiaha road in progress has been the construction of the Olinda reservoir at a cost of \$26,585, and pipe laying of the Kahului-Wailuku water works.

The new territorial prison, mentioned in the last ANNUAL, is nearing its finishing stage, save the administration building, yet to be started, a concrete structure 170 x 45 feet, forty feet high. At the close of the fiscal year (June), there had been expended on this work, \$115,673.

The *pali* road is being rebuilt in concrete, with a retaining wall of same for safety and endurance.

Reclamation projects are progressing slowly and bids fair to claim attention for some time, especially if the Waikiki scheme is entered upon.

Honolulu's wharf question proves a serious problem. A number of changes are under way, principal of which is the extensive concrete project in course of construction at the corner of the Esplanade, foot of Fort street. Piers 8, 9 and 10, from the Alakea wharf to the Oceanic dock is being constructed entirely of reinforced concrete under a contract of \$285,000. The body of the wharf resting on an hydraulic fill will be enclosed by concrete retaining walls, the overhanging portion being supported on heavy concrete cylinders. The

bulkhead walls are about completed, and a number of the cylinders have been cast and will be placed in position shortly.

It is proposed to erect on these piers two-story concrete sheds for the needs of passengers and freight, the second floor to include exhibit and recreation features.

After thirty years of service the old Marine Railway has been removed, the modern floating dry dock serving better purpose.

The Kuhio wharf, Hilo, with its shed is completed and is being provided with a series of mechanical conveyers to facilitate sugar loadings. This wharf has been the subject of much discussion of late as to its safety, consequent upon the ocean current and swell. This will be modified as the breakwater lengthens. This breakwater work has gone on steadily through the year, but trouble is threatening the contractor's camp which may delay its progress for awhile.

Kahului harbor is undergoing another dredging, and has the prospect of an additional breakwater for the better protection of the port.

#### INTER-ISLAND COALING STATION.

Much progress is noted in the construction work of this far-seeing mammoth enterprise of the Inter-Island Company on its acquired property, some thirty-six acres, beyond the railroad wharves, as mentioned in last ANNUAL.

The dredging work originally planned for the pier work and a slip 180 x 850 feet is done, but will be extended further later, the material being used to fill and make solid ground the above coal station area. This dredging has been done to a depth of thirty-two feet at low low water.

The piles and pier work are all of steel reinforced concrete, massive in character and of best enduring quality, presenting a fine, smooth surface as the molds are removed, void of that honeycomb character requiring filling treatment. The concrete work of the pier end, 160 feet on the harbor, is about done, and the 600 feet length in the slip is well under way.

The piles are made in sixty or more feet lengths and each is driven till it can go no further, yet with all the steam hammering to place, the pile heads show no breakage or chipped corners.

This, as other work, has suffered through difficulty in obtaining supplies as required, so that its completion is not looked for before June next. As stated in last ANNUAL, the station will have a capacity of 165,000 tons, with two unloading towers, each capable of handling 200 tons an hour, the coaling berths of the piers being sufficient to accommodate seven vessels at a time.

#### COMMERCIAL STATUS.

The total value of the imports and exports of the territory for the fiscal year 1916 reached its highest mark of \$104,267,440, being \$64,906,104 for exports, mostly domestic products, a gain of \$2,351,047 over 1915, and \$39,361,336 for imports, a gain of \$6,122,813 over the preceding year.

This large increase in import values is more the higher cost of commodities than of increased shipments except in a few instances.

A study of the comparative customs tables, pp. 21-24, is worth while. In that of domestic exports, page 21, a number of the items have fallen off in value, with a few dropped out entirely, showing the struggle of diversified industries in Hawaii for due reward. Facing these facts we are fortunate to have made the progress above indicated, with \$25,544,768 to our credit.

Of the list of imports, pp. 22-23, automobiles have made the biggest jump, \$2,102,924, being nearly double that of 1915. Other advances in values are fairly well distributed. Considering the building activity in progress to find lumber has not shared in this increase probably indicates ample stocks on hand from the previous year. Other materials in the building and construction lines, as also provisions, show considerable increase.

## NAVAL STATION PROGRESS.

Improvements at the naval station since the writer's last visit, when the dry dock refused to stay in its place, are many, and they loom large and look substantial. The coaling plant with its wharf, railroad and hoisting towers are in successful operation. Coal is now stored in one end of the basin though not quite complete. A thousand feet reinforced concrete wharf at head of the dry dock entrance is well under construction; dredging for torpedo boat piers is complete and the concrete piers ready to place.

The head section of the dry dock is in place but not complete. The second section is a typical one in place, the sides of which are showing above the water line, indicating that the typical operations for the dock have proven a success. The power plant of the station supplies electrical current also to Ft. Kamehameha. The high power radio station, with its three steel towers 600 feet high, is complete except for aerial wiring now under way. This station consists of power house, operating building and operators' quarters. Many other buildings have been added; roads improved and extended, and a number of irrigated lawns to officers' quarters. This is but a part of the changes in progress.

## INDUSTRIAL AND COMMERCIAL MUSEUM.

An outcome of the interest taken in the Pan-Pacific movement inaugurated here a few years ago, is the recent establishment of an Industrial and Commercial Museum, which occupies the second floor of the Cummins' block, over Castle & Cooke's offices, corner of Fort and Merchant streets, a most convenient and central location. Here is being gathered a representative collection of the natural products and manufactures not only of Hawaii, but other countries of the Pacific. In this way the Hands-Around-the-Pacific-Movement, at this Cross-roads, promotes education of Pacific's Commercial possibilities to the mutual advantage of all lands interested, convenient to the increasing traveling public.

**REALTY CONDITIONS.**

The business of the Record Office for the twelve months ending June 30, 1916, as compared with the previous year, shows a steady increase in volume of business and passed over what was a record year in 1915. No more favorable aspect in real estate has ever been shown than by the conditions existing the past year. The values in real estate have steadily, and, in some instances, heavily increased. Heavy sales have been negotiated at advanced prices. Beach residential property has sharply advanced,—practically 100 per cent. in two years' time, for favorable locations. Many large sales of business property have taken place during the past year at very favorable prices. Interest rates have decreased and while the figure fluctuates between six and seven per cent. for first-class loans it is expected that six per cent. will be the ruling rate for at least another twelve months.

The favorable conditions mentioned above bid fair to continue for some time, and with the low rate of interest and the favorable attitude on the part of loaning agencies, there should be an extensive upbuilding of homes the coming year.

**REAL ESTATE ACTIVITY.**

Never has Honolulu experienced such activity in real estate as it has enjoyed this past year, nor of such magnitude, in both improved and unimproved property. Among the many transfers since the opening of 1916 are noted the following:

The federal government finally accepts the Irwin site for the long-talked-of Federal building. Price \$200,000, improvements to be removed at sellers' expense. Recently it sold at public auction its former holding, the Mahuka site, for \$475,000, an area of 41,799 square feet. Castle & Cooke were the buyers. A portion of the King street front has been sold to the Hawaiian Trust Co. for the Brewer Estate, and the Hawaiian Electric Co. secures the Emmeluth corner. This Estate has also purchased the Stangenwald building at \$225,000 on Merchant street. The Damon building, corner of Fort

and Hotel, changed hands for \$77,000; the McCandless building, corner of King and Alakea, has been sold to J. A. Balch; T. H. Davies & Co. secures the Spreckels property from Merchant to Queen streets, for \$234,621, and Magooon buys a block of upper Mauna Kea street property for \$22,000.

Among residence properties have been the sale of the artistic home of the Howard villa and grounds to John Waterhouse, reported at \$100,000; Mrs. L. De Groff secures a lot in the same Howard tract, for the erection of a \$20,000 bungalow; 4½ acres of upper part of the new Dowsett Nuuauu tract, opposite the Country Club, sold to Albert Wilcox for \$31,444; A. A. Wilder sells his beach residence to J. L. Stack, of Chicago, for \$22,000, and the Nuuauu home has been bought by Judge C. F. Clemons at \$16,000; W. M. Giffard's residence property has been secured by Dr. A. G. Hodgins at same figure; Mrs. H. Waterhouse's former home on Nuuauu avenue sold to the Mutual Investment Co. for \$12,000; the Bartlett Kaalawai home sold to Mrs. A. Wall for \$10,000; the Jones property on Nuuauu and on Kuakini streets have lately changed hands; the Bingham residence sold for \$6,500; the Granville on King street transfers to A. A. Hobson, price not named. Of other city property is a sale of five acres of the Dowsett Iwilei tract to the City Mill Co. for \$50,000 for a lumber yard, and the Standard Oil buys a tract adjoining its tanks, of the Oahu R. & L. Co. at \$60,000.

At an auction sale recently of Pacific Heights lots, of the Booth Estate, a large number were disposed of at full figures.

Of subdivision tracts the Royal Grove lots, Waikiki, and the Lyman tract lots on King street, near Pawaa, are reported as disposed of. A fine tract of Allen property, on Wilder avenue, has been subdivided into some thirty residence lots and put upon the market. A new street runs through the tract, built in concrete. The same provision is made in the division of the forty-acre Dowsett tract opposite the Country Club, some sales of which are reported. Another tract being subdivided to be shortly placed on the market is the Wilder home-

stead, on Pensacola and Piikoi streets. This also is being provided with a concrete road running through.

Among other island, or out-of-town, properties changing hands is reported the sale of the Princeville property of some 6,000 acres, with water rights, at Hanalei, Kauai, to the Lihue Plantation for \$250,000. On Maui the Cornwell interest in the Cornwell ranch has been sold to H. W. Rice for \$215,000. On Oahu, Libby, McNeil & Libby buys F. E. Haley's interests in Pupukea lands at \$120,000, since which time Haley purchases Gianaca's pineapple lands for \$100,000. At Leilehua, L. L. McCandless secures the Kahanu Meek land of some 266 acres for \$10,800.

#### SCHOOL MATTERS, ETC.

Central Grammar school, Emma street, has an additional two-story twelve-room school building, costing some \$26,000, erected during the summer vacation and finished in time for the new term. This addition is in pleasing contrast to the late type of school extensions mentioned in last ANNUAL.

St. Louis college has also an additional new model structure.

An offer of \$25,000 by private parties on Maui toward a new high school building was made the supervisors of that County, lately, indicating their appreciation of its pressing needs.

Playgrounds of a number of schools and parks are being equipped with game outfits for the exercise and amusement of children and youth, notably the establishment of Kamamalu playground, on the old Fort street school premises; the Atkinson park, Kakaako, turned into a playground of the Kindergarten Aid Association; Kaiulani school; St. Elizabeth's, and the Kalihi Union Church grounds. Like equipment is promised for Aala park.

Hilo takes the initiative in providing a detention home for neglected and homeless boys, which has been established through the earnest effort of Rev. Father Aloysius Borghouts, costing some \$5,000. The home is located in upper Waianuenue street, opposite the hospital.

## BUILDING NOTES.

Building activity in Honolulu for 1915 showed a marked advance over that of 1914, the latter being \$810,000, against \$1,349,981 for the later period. This past year, 1916, will be much greater, as already, for the ten months ending October, the value for 1,289 permitted structures amounted to \$1,943,221. This does not include government work, nor buildings upon the other islands which also reports activity.

Among the more prominent of the improvements in progress may be mentioned the completion of the Mission Memorial building; the Wolter's block; the *Star-Bulletin*'s new concrete building, which had its opening reception July 1st; the King's Daughters' Home, costing some \$25,000, which also opened July 1st. Of new undertakings is the fine two-story brick block of stores, fourteen in number, which has been erected by the O. R. & L. Co. on King street, between the station and the bridge, and are erecting others like them to face Queen street. The old wooden structures that occupied this site have been re-erected further out, adjoining the Palama Settlement quarters. Also for business use are two two-story stone and concrete structures near the foot of Mauna Kea street. A new three-story building is replacing the Popular theatre, which will have connection with the Young Hotel. The Moana Hotel is undergoing extensive changes by the addition of steel-framed wings on each side, and securing several adjoining properties for their needed enlargement.

A new Catholic church, at Kalihi, St. Anthony's, was dedicated May 7th, a neat gothic structure, from plans of E. A. P. Newcomb. Extensive work is in progress for thorough equipment of the Salvation Army's headquarters in Manoa; much property and liberal donations having been made them with this end in view. Many new homes grace College Hills this year, as also other elevated sites. Among others, Dr. Grossman is rebuilding in Nuuanu; L. L. McCandless is erecting a two-story concrete residence on his Liliha street

property; Mrs. S. Overend is building a fine home on her Kaimuki lot, and J. N. S. Williams is building in Manoa.

A number of buildings have been erected for the better equipment of Ft. De Russy, fifteen being just completed of the \$100,000 group of officers' quarters, administration building and dispensary. Ft. Shafter has likewise extended its group of buildings. It has also erected a play house, and is in the enjoyment of a new theatre with seating capacity for 1,225, which had its opening July 3rd last.

Hilo rejoices in the near completion of their \$200,000 federal building and postoffice, with other structures as evidence of their progress; Maui not to be outdone reports among other improvements the two-story concrete fireproof store structure of the Pioneer Mill Co., costing \$40,000; the new Grand Hotel at Wailuku, costing \$23,000, and the new Baldwin Memorial church, at Paia, now in process of erection, from plans of C. W. Dickey by the Spalding Construction Co. The building will be finished internally in quartered oak, and a new organ is being built for its equipment. Lihue has just completed a fine two-story concrete fire-proof block for business and office purposes as also for a theatre, the finest outside of Honolulu, and exceeded here only by the Opera House.

Other structures are given mention elsewhere.

#### ROAD TESTS.

As a practical test of road construction the engineering department of the College of Hawaii, under the superintendence of Prof. J. L. Young, has constructed a stretch of road work connecting Metcalf street with Maile Way, giving entrance to Manoa valley, in which 400 feet lengths each of plain concrete, with concrete curbing; reinforced concrete with twelve-inch mesh and cut lava rock curbing; crushed coral on a coral rock base; asphalt macadam, and a shorter section of Warrenite, all of which has been done in accordance with expert modern engineer theories. This sample of road building, through legislative appropriation, constructed for a com-

parative demonstration of wearing quality on equal traffic conditions, will help solve a serious public problem, and aid our city fathers to meet the demand for good roads without waste of time discussing the merits of sundry methods, or of time and money in undoing their own work as lately experienced with Kalakaua avenue parking.

#### PLANTATION MATTERS.

Efficiency is the watchword of Hawaii's sugar industry, and energy bends toward the latest and best in machinery or methods that will give the best returns. To this end quite a number of changes have taken place in mill plants, and others are in progress preparatory to entering upon the crop for 1917. Among the various changes transpiring are reported the following:

Waianae Company enlarged their mill capacity by a twelve roller mill for their 1916 crop.

Kahuku Plantation installed a large new type bronze vacuum pan this year and put a portion (1,500 tons) of this season's crop into the refined product by the so-called "Dutch process", under the Norit patent, for the benefit of the pineapple and local trade.

Olaa has installed a new standard quadruple evaporator set, displacing the Lillie, thereby greatly increasing their capacity.

The addition to several plantations of the Truscott calandria vacuum pan is proving economical as a time and heat saver. The Hawaiian Sugar Co. was its introducer at the opening of this last season.

The Hawaiian Commercial & Sugar Co. have had built the largest bronze vacuum pan in these islands, 10 ft. 4 ins. inside diameter, by the Catton, Neill & Co., having a capacity of fifty tons. This plantation is also erecting a power plant to prove the advantage of electricity over steam power in much of their mill work.

Maui Agricultural Co. is installing four of the largest filter presses yet made, of a new type, built by the Honolulu Iron Works Co.

Oahu Sugar Co. plans an outlay of \$1,000,000 in the enlargement of their mill and boiling house plant, during this coming year, for the expeditious handling of their new larger areas of cane.

Honolulu Plantation has run a tunnel up Waimalu gulch and constructed a reservoir to conserve waters estimated at over 600 million gallons annually.

Lihue Sugar Co. has purchased the controlling interest of the Makee Sugar Co.

The Hawaiian Planters' Association in view of the high price received for sugar this year have evolved a plan on a bonus, paid in two instalments at the close of the season, which is one to encourage permanency of workmen and will net laborers greater benefits than restless spirits in the late contemplated movement for increase of pay hoped for. This bonus, being paid in two instalments at the close of the season, is estimated to amount to over \$4,000,000.

#### **EXPERIMENT STATION WORK.**

Director J. M. Westgate of the Hawaii Experiment station and M. O. Johnson, chemist, have succeeded, after a year's practical tests, in recovering the pineapple soil conditions that was a serious menace to the crops in several sections, the remedying agent being a spraying of the plants with a preparation whereby the iron deficiencies of Manganese soil are overcome.

*Adyiba*, or African sorghum, tested for five years at the Experiment station, has averaged 13.6 tons of green forage per acre per year. This is one of the many introductions by Dr. Hillebrand.

#### **INTEREST IN HEIAUS.**

The government has given some attention to this subject during this past year, with a view to the restoration of the

more important historic temples found worthy of preservation. The superintendent of public works has had some preliminary investigations made and data collected on certain parts of Hawaii, and of Oahu, of those accessible to tourists, reports on which are not very encouraging.

The Kauai Historical Society is also proposing to take steps to preserve what remains of their famed temples of ancient time.

#### NEW INTRODUCTIONS.

Thanks to the activities of the Outdoor Circle and the investigations of Prof. J. F. Rock in his trip to India, seedlings of the "sealing-wax palm" were introduced successfully here toward the close of 1915, from Singapore, and are being cared for at the government nursery for the decoration of the Capitol grounds. It is described as a palm of rare beauty, the stem of its leaves being a bright sealing-wax red, hence its name.

More recently Prof. Rock has secured from the Java Botanical gardens a specimen of what is described as the most magnificent flowering tree of the tropical world, *Amherstia nobilis*. A number of other rare plants and seeds were obtained for the enrichment of Hawaii's flora.

#### MORE PARASITES.

Further success in obtaining the parasite of the melon fly was reported by D. T. Fullaway on his return this past summer from his search tour in Macao, Singapore, India, and Manila, bringing with him the India parasite *Opius fletcheri*. Owing to unfortunate conditions en route the colony was much reduced, but with watchful care sufficient survived to afford the islands much relief.

Later, parasites of the corn leaf hopper, Japanese beetle and anomala cane grub parasites were received from the Philippines and are being cultivated very successfully according to recent reports, so that these insect pest ravages will soon be a thing of the past.

#### HOSPITAL EFFICIENCY.

The Queen's Hospital has installed, this past summer, an X-ray outfit of modern efficiency, of the Meyer type, at an expense of some \$3,000.

The Leahi Home is also provided with an X-ray outfit. The value of the institution is enhanced by the completion recently of the Young Memorial Pavilion for women patients, erected by the family to the memory of the originator of this merciful home.

The Children's Hospital has also undergone extension and improvement.

Mrs. A. S. Wilcox is having erected at Kapaa, Kauai, the Samuel Mahelona Memorial Hospital, for tubercular patients, at an estimated cost of \$25,000, being of special design for the special needs and comfort of such sufferers.

#### MUSICAL TREATS.

Music lovers of Honolulu have had the pleasure of welcoming back this year several of the famed artists who delighted us in 1815, notably Mme. Melba, Miss Felice Lyne and the Cherniavsky Brothers, all of whom favored the public with more entertainments, and scoring, if possible, greater success than on their former visits. The very liberal patronage accorded these celebrities on each occasion is an evidence of the appreciation of Honolulans for such high-class productions.

Mme. Melba on this occasion, by a longer stay showed her *aloha* for place and people by taking away with her one of Honolulu's daughters of promise, Miss Margaret L. Center, for voice culture in the Colonies under her supervising care.

Mme. Mariska Aldrich, mezzo-soprano of the Metropolitan Grand Opera Co., was a brief summer visitor, giving two concerts at the Opera House to delighted audiences.

#### STEAMER WELCOMES.

Honolulu rejoiced to welcome the S.S. *Ecuador*, Sept. 3rd, 1916, on her reopening of the Pacific Mail service, the first of the new line, en route to the Orient. The *Venezuela* followed

the next month, and was succeeded by the *Columbia*. These fine equipped steamers will touch at Honolulu both ways in crossing the Pacific.

A more marked demonstration was accorded the return of the S.S. *Great Northern*, with her large party of visitors on arrival, Nov. 14th, being met by Mayor Lane, Governor Pinkham, and a delegation of the Chamber of Commerce and others. The Mayor presented a monster koa key, emblematic of freedom to the city, to the president of the Los Angeles Chamber of Commerce, John S. Mitchell, on behalf of his distinguished party.

#### MARINE CASUALTIES.

Chilean bark *Ivanhoe* dragged her anchors during a *kona* storm at Port Allen, Kauai, on the night of Dec. 25-26, 1915, and quickly went to pieces. Two lives were lost and three men injured in the wreck. One half of her cargo of nitrate, some 600 tons, was lost.

Am. schnr. *Prosper* broke adrift from her moorings in a heavy gale and went ashore Jan. 16, 1916, at Hanapepe, Kauai, and became a total loss. Her cargo of lumber was saved.

Brit. bark *Yeoman* narrowly escaped a like fate in the same storm, at Port Allen. She was rescued from a perilous position by the lighthouse tender *Columbine* and tug *Navajo*, and towed to this port.

Schr. *Repeat*, lumber laden for Honolulu, through stress of weather, was abandoned water logged south of Columbia Bar. Stmr. *Roanoke* fell in with her and towed her into Astoria Jan. 27, 1916. Complete repairs were effected and the vessel reloaded for this port.

Schr. *Muriel*, with lumber, grounded near Kaanapali Oct. 5, 1916, but with prompt aid was got off and towed to moorings the next day, with but partial loss of shoe.

Stmr. *Inaho Maru*, from Yokohama, Oct. 6th, reported thirty cases of Honolulu merchandise damaged through fire, which occurred during the voyage.

S.S. *Lurline* grazed a submerged rock off Mokapu Light, Oct. 18th, in arriving from San Francisco. Inspection showed but dented plates, no serious damage. Some repairs were effected while here, but she returned to the coast without freight or passengers.

S.S. *Manoa* suffered a cracked rudder, cause unknown, necessitating repairs and delay on her November return trip to the coast.

#### FIRE RECORD.

The city has been favored another year with but slight fire loss, due in several instances to the more efficient equipment of the department by the new motor outfits. Alarms have been frequent, but through the vigilance of the department and prompt response to points of call, but twenty-five have suffered loss for the twelve month since our last report, with a total merchandise loss of but about \$12,000.

The more important disasters were that of the City Planning Mill in the early morn of March 3rd, from unknown cause, causing material damage to the building, machinery, lumber, etc., but partially covered by insurance, and the fire on Nuuuanu street, near Pauahi, which destroyed or damaged five stores, occupied by Chinese in various lines of business, with an estimated merchandise loss of \$3,500, partly insured.

The minor fires were the stables of the Union Transfer Co. in which several vehicles and much stock was destroyed, a cottage club house at Kalihi, and the Hardesty home at Kaimuki.

On the other islands fire destroyed the Home for the Aged at Kalaupapa, Molokai, and a block of buildings of several stores at Nawiliwili, Kauai.

#### RECORD TRIPS.

Steamship *Great Northern*, from this port December 6th, 1915, at 11 p. m. for San Francisco, arrived there in the evening of the 10th, making the record trip in three days,

eighteen hours and fifty-one minutes, beating the trip of the S.S. *Tenyo Maru* of 4d. 18h. 50m. in June, 1908.

On the second December visit of the *Great Northern* she made the run from Hilo to Honolulu in eight hours and thirty-four minutes, a new record.

S.S. *Floridan*, coal laden from Newcastle, arrived here August 27th, 1916, making the trip in 15 days and 16 hours.

March 6th, 1916, E. W. Baker, weighing 230 lbs., made a circle ride of Oahu in the record-breaking time of two hours, four minutes, thirty-six seconds, on an Indian motorcycle. The distance covered was eighty-nine and six-tenths miles.

#### NECROLOGY.

Another heavy toll has been claimed by the grim reaper from among the early or well known residents, a number of whom died abroad. Since our last record are the following: Harry Wright (62), Mrs. F. M. Love (73), J. F. Eckardt (58), John Cook (91), Mrs. K. Singer (81), J. T. Stacker (61), E. P. Melanphy (25), C. R. Collins (50), Jno. D. Holt (54), Jas. Carty (77), Judge S. B. Kingsbury, Los Angeles (75), Mrs. M. K. Stacker (47), Mrs. C. R. Dole, Redlands, G. E. Miner, Wailuku (82), Dr. Archer Irwin (49), J. C. McCandless, Lodi, Cal. (23), Mrs. J. S. Gay, Makaweli (87), W. B. Thomas, Los Angeles (63), Mrs. T. G. Thrum (71), W. E. Rowell (71), Mrs. E. S. Dower (77), Mrs. J. V. Lyons (61), C. A. Kibbling (54), Jas. R. Holt (77), R. J. Greene (79), Mrs. M. T. McIntyre (76), Mrs. H. A. Williams, San Fran. (85), Mrs. M. I. Brown, San Fran. (94), Wm. Savidge (44), Mrs. C. G. Owen, Boston (34), A. B. Lindsay, London (47), J. A. Magoon, Phila. (58), Dr. D. McLennan (68), A. S. Humphreys (48), Wm. G. Ogg, Pahala (50), H. M. Coke, Cal. (46), Francis Sinclair, Eng. (83), Geo. O. Cooper, Hana (42), Miss E. A. Johnson (66), Geo. Osborne (72), Dr. W. L. Moore (53), Mrs. S. D. Heapy (59), Chas. Hustacee, Jr. (54), Capt. F. D. Walker (77), Jas. Nott, Sr. (81), Jas. L. McLean (49), Chas. H. Brown (59).

**BABY WEEK.**

Honolulu had a baby week in April, at the Palama Settlement, which claimed much public attention and interest, not only in its prize feature but in the lectures and demonstrations, for its value in the child welfare movement of which Mr. J. A. Rath, Mrs. F. W. Macfarlane and a number of others see much need in this community, and hope to establish a child welfare station, which would be invaluable to mothers.

The report of the examinations for the week showed a high average, the majority of the 411 babies examined passing with an average of 90%. Two babies scored perfect, 100%, with three others but a half point less.

Of the nationalities inspected Americans predominated, with Koreans next, then Japanese, Chinese, Portuguese, Spanish and Hawaiians, the latter represented by two only, a matter of great disappointment at the apathy of the native race for their welfare. All these were of pure race type. Of Hawaiian mixed blood there were a dozen or more varieties present.

In proportion of nationalities, Koreans showed the greatest interest and Hawaiians the least.

**SPORTS.**

Sporting events have been full and varied this year. A paper on the Tuna Club activities, on page 85, shows the growing interest in this local attraction. The fame of Hawaii's world champion swimmer has lured hither several foremost champions of other lands to test their skill against local stars in aquatic feats, notably Miss Francis Cowells, lady champion of the Pacific Coast, Ludy Langer, famed distance swimmer, and Herbert Volmer, New York expert.

Several baseball teams from abroad have tested the stuff our players are made of, and found they could "play ball". The Santa Claras, Olympics, and Wasedas all went home with honors divided, and now the All Americans are at the bat. In the series of games during Carnival week, the 25th Infantry team won both games they entered.

Tennis champions from Coast clubs have tested the skill of local stars. Three exhibition games of billiards by the champion player Wm. F. Hoppe and Japanese expert Koji Yamada, were given at the Armory this summer. In the annual boat races four clubs participated, honors this year going to the Healanis.

Under the auspices of the Polo and Racing club there have been several interesting and exciting events held at their field, Kapiolani Park, the holiday races proving specially attractive. Not less so was the interest in the series of Inter-Island Polo contests, in which the Army, Kauai, Maui, and Oahu teams strove for honors. Each of the games was hotly contested and much enthusiasm was shown by the large attendance of spectators.

#### COUNTY FAIRS.

Not every town can score a success in Civic Convention and County Fair attractions in the same breath, but Hilo "has gone and done it". Hawaii held its Second County Fair at Hilo, during Convention time, Sept. 22-24, 1916, and scored a triumph highly complimentary to its manager, promoters and co-workers. The exhibit of live stock was a marked feature; farm and plantation products; mechanical and home industries, and exhibits by firms and private parties was especially fine. The exhibition throughout was full of educational interest.

Maui is holding its First County Fair, at Wailuku, from Nov. 30 to Dec. 2. From the spirit of enthusiasm prevailing therein, the energy of its (the Fair's) moving spirits have won the hearty cooperation of many even beyond the limit of the valley isle, for Hawaii shares therein and Oahu aids the exhibit by territorial, federal, museum and others participating in its attractions, so that her slogan "Maui no ka oi," will surely be verified.

#### PREPAREDNESS.

This record of the year's events would be incomplete without mention of the spirit of preparedness that has manifested

itself in the community as shown in the growth of Hawaii's militia in this and other islands of the group. The *P. C. Advertiser* of May 21, 1916, devoted itself to this subject by a 60-page illustrated issue; the Honolulu School for Boys has changed title to Military Academy; staid Punahou, in keeping with the spirit of the times, now includes military instruction, and Kamehameha Manual gives emphasis to military tactics.

Another line of preparedness is the work in progress under A. Hume Ford for the parade and pageant attractions for our next Carnival season, which is promised to eclipse all preceding effort in floats, etc., typical of Hawaiian life with a gorgeous setting that will prove impressive and insure success. Evidently there's going to be "a hot time" in Honolulu next Carnival week, celebrating Washington's birthday.

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## NEW HAWAIIANA

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As the last ANNUAL issued there came from the *Gazette* press Prof. Wm. Alanson Bryan's "Natural History of Hawaii," a 7 x 10 book of over 600 pages, freely illustrated and copiously indexed, with bibliography of the works consulted in its preparation, for it is largely a compilation from the various authorities on the many subjects with which it deals, to present the same in comprehensive form.

The work is divided in two parts, book one being devoted to the Hawaiian people; Geology; Geography and Topography of the Islands; Flora of the Group and Agriculture and Horticulture in Hawaii, while book two embraces the Animal life of the Group, of land and sea with much detail. It thus covers a wide field and has entailed a vast amount of research and labor in its preparation, the subject of several years of devoted work.

During summer appeared Part I of the long-looked-for "Fornander Collection of Hawaiian Antiquities and Folk-lore", issued as Vol. IV of the Bernice Pauahi Bishop Museum Memoirs Series, being the account of the formation of these islands

and origin of the race, with the traditions of their migrations, etc., as gathered from original sources by Abraham Fornander, with translations revised and illustrated with notes by Thos. G. Thrush. The collection is being published in quarto form in Hawaiian and English on opposite pages; this first part giving the "Story of the formation of these islands and origin of the race", "Legend of Aukelenuaikau", "History of Moikeha" and "Legend of Kila", his son.

Part II, now printing, will give the remaining traditions of historic character, thus completing the first of this nature and will carry also the full index of the first series. The remainder of the collection will form other series of Myths and Legends and Miscellanea.

"Reminiscences of Old Hawaii" comes from the *Gazette* press, being a series of papers by the Rev. Sereno E. Bishop, published in *The Friend* while he was editing that journal, and recently republished in the *Sunday Advertiser*. To meet the public interest in those revelations of island life in the early days of missionary effort, 1827-1839, with observations of changes upon his return here from the States in 1853 after thirteen years' absence, this series of reminiscences has been put into preservable form as "The Advertiser Historical Series. No. 1", to which Mr. L. A. Thurston has added a preface and biographical sketch of the author.

"Trade Wind Lyrics of Aloha Land" is a booklet of verse by Herbert M. Ayres, a 60-page collection of eighty-five poems, mostly local in their sentiment and fine in their quality. The author is a frequent press contributor and evidently lives in the muse atmosphere of Aloha-land.

"The Edge of the Crater" and Other Poems is a series of inspirations by Will Sabin, eighty-four in number, mostly local in tone, revealing far more soul aspirations than the titles indicate. Several of the collection are pretentious also in length and their variety embrace not a few spicy skits at follies as they fly.

### List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (\*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mills. (Corrected to November 1, 1916.)

Name.	Location.	Manager.	Agents.
Apokaa Sugar Co.*	Ewa, Oahu . . . . .	G. F. Renton . . . . .	Castle & Cooke, Ltd.
Ewa Plantation . . . . .	Ewa, Oahu . . . . .	G. F. Renton . . . . .	Castle & Cooke, Ltd.
Gay & Robinson . . . . .	Makaweli, Kauai . . . . .	S. Robinson . . . . .	H. Waterhouse Trust Co., Ltd.
Grove Farm*	Nawiliwili, Kauai . . . . .	Edwin Broadbent . . . . .	H. Hackfeld & Co., Ltd.
Hakalau Plantation Co . . . . .	Hilo, Hawaii . . . . .	J. M. Ross . . . . .	C. Brewer & Co., Ltd.
Halawa Sugar Co. . . . .	Kohala, Hawaii . . . . .	H. H. Perry . . . . .	T. H. Davies & Co., Ltd.
Hamakua Mill Co. . . . .	Hamakua, Hawaii . . . . .	A. Lidgate . . . . .	T. H. Davies & Co., Ltd.
Hawi Mill and Plantation Co. . . . .	Kohala, Hawaii . . . . .	John Hind . . . . .	Hind, Rolph & Co.
Hawaiian Agricultural Co. . . . .	Kau, Hawaii . . . . .	Jas. Campsie . . . . .	C. Brewer & Co., Ltd.
Hawaiian Commercial & Sugar Co. . . . .	Puunene, Maui . . . . .	F. F. Baldwin . . . . .	Alexander & Baldwin, Ltd.
Hawaiian Sugar Co. . . . .	Makaweli, Kauai . . . . .	B. D. Baldwin . . . . .	Alexander & Baldwin, Ltd.
Hawaii Mill Co.†	Hilo, Hawaii . . . . .	Jas. Henderson . . . . .	C. Brewer & Co., Ltd.
Hilo Sugar Co. . . . .	Hilo, Hawaii . . . . .	John A. Scott . . . . .	C. Brewer & Co., Ltd.
Honolulu Plantation Co. . . . .	Halawa, Oahu . . . . .	Jas. Gibb . . . . .	F. A. Schaefer & Co., Ltd.
Honokaa Sugar Co. . . . .	Hamakua, Hawaii . . . . .	Alexr. Morrison . . . . .	C. Brewer & Co., Ltd.
Honomu Sugar Co. . . . .	Hilo, Hawaii . . . . .	Wm. Pullar . . . . .	C. Brewer & Co., Ltd.
Hutchinson Sugar Plantation Co. . . . .	Kau, Hawaii . . . . .	Geo. Gibb . . . . .	C. Brewer & Co., Ltd.
Kaeleku Sugar Co. . . . .	Hana, Maui . . . . .	J. Chalmers . . . . .	T. H. Davies & Co., Ltd.
Kahuku Plantation . . . . .	Kahuku, Oahu . . . . .	Andrew Adams . . . . .	Alexander & Baldwin, Ltd.
Kaiwiki Sugar Co. . . . .	Ookala, Hawaii . . . . .	Jas. Johnston . . . . .	T. H. Davies & Co., Ltd.
Kaiwiki Milling Co.†	Hilo, Hawaii . . . . .		H. Hackfeld & Co., Ltd.
Kekaha Sugar Co. . . . .	Kekaha, Kauai . . . . .	H. P. Faye . . . . .	C. Brewer & Co., Ltd.
Kilauea Sugar Plantation Co. . . . .	Kilauea, Kauai . . . . .	J. R. Myers . . . . .	H. Hackfeld & Co., Ltd.
Kipahulu Sugar Co. . . . .	Kipahulu, Maui . . . . .	J. Fassoth . . . . .	Castle & Cooke, Ltd.
Kohala Sugar Co. . . . .	Kohala, Hawaii . . . . .	Geo. C. Watt . . . . .	

## List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.—Continued.

Name.	Location.	Manager.	Agents.
Koloa Sugar Co.	Kauai	E. Cropp	H. Hackfield & Co., Ltd.
Kona Development Co.	Kona, Hawaii	T. Konna	H. Waterhouse Trust Co., Ltd.
Koolau Agricultural Co.*	Koolau, Oahu	Andrew Adams	Alexander & Baldwin, Ltd.
Kukaiau Mill Co.†	Hamakua, Hawaii	J. McLennan	T. H. Davies & Co., Ltd.
Kukaiau Plantation Co.	Hamakua, Hawaii	J. McLennan	T. H. Davies & Co., Ltd.
Laie Plantation	Laie, Oahu	S. E. Wooley	Alexander & Baldwin, Ltd.
Laupahoehoe Sugar Co.	Laupahoehoe, Haw	C. McLennan	T. H. Davies & Co., Ltd.
Lihue Plantation Co.	Lihue, Kauai	F. Weber	H. Hackfield & Co., Ltd.
Makee Sugar Co.	Keaia, Kauai	G. P. Wilcox	H. Hackfield & Co., Ltd.
Maui Agricultural Co.	Haiku, etc., Maui	H. A. Baldwin	Alexander & Baldwin, Ltd.
McEryde Sugar Co.	Wahiaawa, Kauai	F. A. Alexander	Alexander & Baldwin, Ltd.
Niuli Mill & Plantation	Waipahu, Oahu	Robert Hall	T. H. Davies & Co., Ltd.
Oahu Sugar Co.	Waipahu, Oahu	E. K. Bull	H. Hackfield & Co., Ltd.
Olaa Sugar Co.	Olaa, Hawaii	C. F. Eckart	Bishop & Co.
Olowalu Sugar Co.	Olowalu, Maui	Alexr. Valentine	C. Brewer & Co., Ltd.
Onomea Sugar Co.	Hilo, Hawaii	John T. Moir	C. Brewer & Co., Ltd.
Paauhau Sugar Plantation Co.*	Hamakua, Hawaii	F. M. Anderson	C. Brewer & Co., Ltd.
Pacific Mill (†)	Hamakua, Hawaii	Alexr. Morrison	F. A. Schaefer & Co., Ltd.
Pepeekeo Sugar Co.	Hilo, Hawaii	Jas. Webster	C. Brewer & Co., Ltd.
Pioneer Mill Co., Ltd.	Lahaina, Maui	L. Weinzheimer	H. Hackfield & Co., Ltd.
Puakea Plantation Co.	Kohala, Hawaii	H. R. Bryant	H. Waterhouse Trust Co., Ltd.
Union Mill Co.	Kohala, Hawaii	H. H. Renton	T. H. Davies & Co., Ltd.
Waialaea Mill Co.	Hilo, Hawaii	D. Forbes	T. H. Davies & Co., Ltd.
Waialua Agricultural Co.	Waialua, Oahu	W. W. Goodale	Castle & Cooke, Ltd.
Waianae Plantation	Waianae, Oahu	Fred. Meyer	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui	H. B. Penhallow	C. Brewer & Co., Ltd.
Waimanalo Sugar Co.	Waimanalo, Oahu	Geo. Chalmers	C. Brewer & Co., Ltd.
Waimea Sugar Mill Co.	Waimea, Kauai	G. R. Ewart, Jr.	H. Hackfield & Co., Ltd.

**HAWAIIAN SUGAR CROPS, IN TONS, 1911-16.**

From Tables Prepared for Hawaiian Planters' Association by its Bureau of Labor and Statistics.

Prior years of this table, originating in 1891, will be found in Annuals since 1901.

Islands.	1911	1912	1913	1914	1915	1916
<b>Production of Hawaii</b>	<b>193,456</b>	<b>209,920</b>	<b>197,415</b>	<b>217,654</b>	<b>240,785</b>	<b>197,654</b>
"    " Maui	139,564	248,585	124,819	144,940	160,283	150,312
"    " Oahu	133,133	139,712	124,228	133,560	129,997	136,966
"    " Kauai	100,668	97,041	100,336	120,884	115,380	108,551
<b>Grand Total.....</b>	<b>566,821</b>	<b>595,258</b>	<b>546,798</b>	<b>617,038</b>	<b>646,445</b>	<b>593,483</b>
 <b>Hawaii Plantations.</b>						
Waiakea Mill Co....	13,365	14,332	13,076	14,922	16,141	14,484
Hawaii Mill Co.....	2,917	2,378	2,855	3,601	3,793	1,845
Hilo Sugar Co.....	12,301	13,872	14,033	18,937	17,905	16,450
Onomea Sugar Co....	16,230	17,454	16,887	19,600	21,320	18,732
Pepeekeo Sugar Co..	7,925	8,009	8,951	9,806	11,948	9,345
Honomu Sugar Co....	7,293	7,450	7,004	8,567	9,852	6,557
Hakalau Plant. Co....	14,157	17,116	15,402	16,863	19,327	15,951
Laupahoehoe Sgr. Co.	8,058	9,087	9,671	11,193	11,730	10,174
Kaiwiki Sugar Co....	5,010	5,896	5,140	6,932	6,849	5,013
Kukaiau Plant. Co....	2,662	2,021	2,078	)		.
Kukaiua Mill Co.....	1,774	1,347	1,385	3,225	4,672	3,118
Hamakua Mill Co....	7,262	9,461	6,845	7,057	9,261	7,661
Paaahu S. Plant. Co.	8,411	11,391	9,958	10,767	10,073	7,859
Honokaa Sugar Co....	9,134	8,259	10,103	7,272	8,613	7,859
Pacific Sugar Mill...	7,499	7,001	5,938	6,250	7,253	5,656
Niulii Mill and Plant.	2,648	2,014	2,803	2,700	3,098	2,110
Halawa Plantation...	1,667	1,902	1,641	2,087	2,840	1,705
Kohala Sugar Co....	5,924	5,970	5,675	4,475	7,780	4,170
Union Mill Co.....	3,022	3,990	1,769	2,608	3,437	1,966
Hawi Mill and Plant..	7,715	9,453	6,489	6,745	9,426	6,461
Kona Developm't Co.	2,333	2,570	2,943	3,477	3,444	144
Hutchinson S. Pl. Co.	6,659	8,002	5,510	5,909	6,781	9,723
Hawaiian Agrl. Co....	13,775	14,938	12,856	17,890	16,407	13,818
Puakea Plantation...	1,094	1,538	839	1,035	1,429	963
Olaa Sugar Co.....	24,026	22,941	27,399	25,736	27,406	26,476
Puako Plantation....	595	519	185	.....	.....	.....
	<b>193,456</b>	<b>209,920</b>	<b>197,415</b>	<b>217,654</b>	<b>240,785</b>	<b>197,654</b>

\* Formerly Ookala Sugar Plantation Co.

**HAWAIIAN SUGAR CROPS, 1911-16—Continued**

Maui Plantations.	1911	1912	1913	1914	1915	1916
Kipahulu Sugar Co..	2,193	2,197	1,408	2,126	2,699	848
Kaeleku Plant. Co.*..	4,492	4,949	4,938	6,225	6,605	6,721
Maui Agri. Co.....	30,765	34,612	24,633	33,660	39,620	34,011
Hawn. Coml. & S. Co.	55,050	60,010	50,310	56,500	56,780	59,035
Wailuku Sugar Co...	16,197	16,775	13,988	16,100	19,177	15,094
Olowalu Co. .......	1,693	1,707	1,738	2,027	2,173	1,850
Pioneer Mill Co., Ltd.	29,174	28,335	27,804	28,302	33,229	32,753
	139,564	148,585	124,819	144,940	160,283	150,312
Oahu Plantations.						
Waianalo Sgr. Co..	4,962	4,979	4,287	5,133	5,260	5,018
Laie Plantation .....	784	1,200	977	1,600	1,171	1,541
Kahuku Plant. Co....	5,686	6,024	6,215	8,193	7,823	6,534
Waialua Agrl. Co....	32,271	33,356	29,751	30,298	31,156	31,227
Waianae Co. .......	7,124	6,021	5,226	0,083	6,400	4,626
Ewa Plantation Co...	31,206	34,435	29,512	29,563	29,502	32,045
Apokaa Sugar Co....	453	895	381	925	356	793
Oahu Sugar Co.....	33,243	33,472	28,142	33,474	29,619	33,625
Honolulu Plant. Co..	17,143	18,692	19,337	20,154	18,233	20,586
Koolau Agrl. Co.....	261	638	400	1,137	487	971
	133,133	139,712	124,228	133,560	129,997	136,996
Kauai Plantations.						
Kilauea S. Plant. Co.	5,471	5,543	5,451	6,426	6,733	5,216
Makee Sugar Co.....	4,168	5,219	7,418	10,660	10,944	5,138
Lihue Plantation Co.	17,740	18,021	19,819	22,065	21,492	20,168
Grove Farm Plntn...	3,724	3,098	3,695	4,415	4,007	3,569
Koloa Sugar Co.....	8,960	8,005	5,886	8,572	9,502	7,955
McBryde Sugar Co...	14,073	13,147	14,509	16,345	15,458	15,598
Hawaiian Sugar Co..	24,975	22,221	22,308	26,826	24,706	23,194
Gay & Robinson.....	4,684	4,659	4,821	5,172	5,259	4,650
Waimea Sgr. Mill Co.	1,860	1,922	1,610	2,258	1,404	2,054
Kekaha Sugar Co....	14,185	14,348	14,008	17,153	15,078	16,107
Estate of V. Knudsen	828	858	811	992	795	902
Total.....	100,668	97,041	100,336	120,884	115,380	108,551

\* Formerly Hana Plantation.

# TERRITORIAL REGISTER AND DIRECTORY FOR 1917.

Corrected to December 1, 1916.

## TERRITORIAL OFFICIALS.

Lucius E. Pinkham.....	Governor
W. W. Thayer.....	Secretary
I. M. Stainback.....	Attorney General
C. J. McCarthy.....	Treasurer
C. R. Forbes.....	Supt. Public Works
B. G. Rivenburgh.....	Comr. Pub. Lands
H. W. Kinney.....	Supt. Public Instruction
J. H. Fisher.....	Auditor
W. P. Jarrett.....	High Sheriff
Will Wayne.....	Secretary to Governor
Jonah K. Kalanianaole.....	Delegate to Congress

## LEGISLATIVE BODY.

### SENATORS.

Hawaii—G. P. Kamauoha, R. H. Makau, S. L. Desha,	Robt. Hind.
Maui—H. A. Baldwin, Geo. P. Cooke,	W. P. Robinson.
Oahu—A. L. Castle, C. F. Chillingworth,	S. P. Correa, M. C. Pacheco, E. W. Quinn, R. W. Shingle.
Kauai—J. H. Coney, M. A. Mikaele.	

### REPRESENTATIVES.

Hawaii—H. L. Holstein, E. K. Kaaua, G. K. Kawaha, H. L. Kawewehi, B. H. Kelekolio, Jno. Leal, N. K. Lyman, E. da Silva.	
Maui—Jno. Brown, Jr., L. I. Joseph, M. G. Paschoal, A. F. Tavares, Ed. Waiaho, J. J. Walsh.	
Oahu—Robt. Ahuna, Lorrin Andrews, C. H. Cooke, E. K. Fernandez, Jas. K. Jarrett, Jos. Kalana, D. M. Kupihea, C. N. Marquez, Wm. E. Miles, W. F. Mossman, T. H. Petrie, G. P. Wilder.	
Kauai—J. de C. Jerves, Jas. K. Kula, Jas. K. Lota, Chas. H. Wilcox.	

## NATIONAL GUARD OF HAWAII.

Lucius E. Pinkham.....	Chief
...Governor and Commander in Chief	
Department Staff.	
Brig.-Gen. Saml. I. Johnson.....	
Chief of Staff, Adjt.-Gen.	
Maj. L. W. Reddington.....	
Asst. to Adjt.-Gen.	
Maj. Chas. W. Zeigler.....	Insp. Gen.
Maj. I. M. Stainback.....	Judge Adv. Gen.
Maj. Jno. W. Short.....	Q. M. Gen.
Lt.-Col. Chas. B. Cooper.....	Med. Corps
Maj. J. M. Camara.....	Ordn. Dept.
Additional Staff.	

Maj. Jas. D. Dougherty, Q. M. C.	
Aide-de-Camp to the Governor	
Capt. Henry Van Gieson.....	Q.M.C.
Capt. Leopold G. Blackman.....	Q.M.C.
Capt. Charles R. Bostwick.....	Q.M.C.
1st Lt. W. Lam.....	Dental Corps

## Department of Judiciary.

### SUPREME COURT.

Chief Justice.....	Hon. A. G. M. Robertson
Associate Justice.....	Hon. ....
Associate Justice.....	Hon. R. P. Quarles

### CIRCUIT COURTS.

First Judge 1st Circuit, Oahu.....	Hon. C. W. Ashford
Second Judge 1st Circuit, Oahu.....	Hon. W. L. Whitney
Third Judge 1st Circuit, Oahu.....	Hon. Jas. L. Coke

Second Circuit, Maui.....	Hon. W. E. Edings
Third Circuit, Hawaii.....	Hon. Jas. W. Thompson
Fourth Circuit, Hawaii.....	Hon. Clement K. Quinn

Fifth Circuit, Kauai.....	Hon. Lyle A. Dickey
CLERKS OF COURTS.	

Clerk Supreme Court.....	J. A. Thompson
Asst. Clerk, Supreme Court.....	Robt. Parker, Jr.
Stenographer, Supreme Court.....	Miss Kate Kelly

Bailiff and Librarian Supreme Court.....	J. M. Ulunalehe
Copyists.....	Wm. Hoopai, Edith Mossman

Circuit Court, First Circuit.....	
Chief Clerk and Cashier.....	Henry Smith
Assistant Clerk.....	B. N. Kahalepuna
Clerks, 1st Judge.....	H. A. Wilder, J. Cullen
Clerks, 2d Judge.....	A. K. Aona, A. E. Restarick

Clerks, 3rd Judge.....	Claus Roberts, Wm. Dickson
Stenographers .....	J. L. Horner, H. R. Jordan, Ellen Dwight
Clerk, Second Circuit, Maui.....	V. C. Schoenberg
Clerk, Third Circuit, Hawaii.....	E. M. Muller
Clerk Fourth Circuit, Hawaii.....	Thos. J. Ryan

Clerk Fifth Circuit, Kauai.....	D. Wm. Dean
COURT INTERPRETERS.	

Hawaiian.....	C. L. Hopkins
Japanese.....	Chester Doyle
Chinese.....	Say Kau Lan

### DISTRICT MAGISTRATES.

Oahu.....	
Jas. M. Monsarrat.....	Honolulu
Alexr. D. Larnach, Second.....	Honolulu
S. Hookano.....	Ewa
E. P. Zablan.....	Waianae

L. B. Nainoa.....	Koolauloa
E. Hore .....	Waialua
Wm. S. Wond, Second.....	Waialua
E. P. Aikue.....	Koolauapoko
Henry Cobb Adams, Second.	Koolauapoko

# REGISTER AND DIRECTORY.

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## Maui.

W. A. McKay.....	Wailuku
Philip Pali .....	Lahaina
Jos. G. Anjo.....	Makawao
G. K. Kunukau.....	Second, Makawao
H. E. Palakiko.....	Hana
G. P. Kaumakaoe.....	Second, Hana
C. C. Conradt.....	Molokai
Jos. E. Conradt.....	Kalawao
J. D. McVeigh.....	Second Kalawao

## Hawaii.

Wm. S. Wise.....	South Hilo
W. H. Smith, Second.....	South Hilo
T. E. M. Osorio.....	North Hilo
R. H. Atkins.....	North Kohala
H. C. Davies.....	South Kohala
Henry Hall.....	Hamakua
M. S. Botelho, Second.....	Hamakua
Jos. S. Ferry.....	Puna
S. H. Haaheo, Second.....	Puna
Walter H. Hayselden.....	Kau
J. L. Kaulukou.....	North Kona
Robt. Makahalupa.....	South Kona

## Kauai.

J. L. Hjorth.....	Lihue
Jas. H. K. Kaiwi, Second.....	Lihue
D. K. Kapahee.....	Koloa
S. K. Kaulili, Second.....	Koloa
Wm. Huddy.....	Hanalei
C. B. Hofgaard.....	Waimea
J. K. Kapuniai.....	Waimea
R. Puuki.....	Kawaihau

## DEPARTMENT OF SECRETARY.

Secretary.....	W. W. Thayer
Chief Clerk of Dept.....	Eben Cushingham
Chris. Holt, R. S. Lono.....	Clerks

## FOREIGN REPRESENTATIVES.

Portugal—Consul General.....	Senhor A. Cunha Pessoa
Italy—Consul (acting).....	E. L. S. Gordon
Austria-Hungary—Consul.....	H. P. F. Schultze
Netherlands.....	H. M. von Holt
Norway—Consul.....	L. M. Vettesen
Denmark.....	C. J. Hedemann
“ (acting).....	Dr. F. F. Hedemann
Germany—Imperial Consul.....	Geo. Rodiek
Mexico—Consul.....	W. Lanz
Peru.....	Bruce Cartwright, Jr.
Chili—Consul.....	J. W. Waldron
“ (acting).....	W. Lanz
Great Britain—Consul.....	E. L. S. Gordon
Belgium—Vice-Consul.....	A. Marques
Sweden—Consul.....	Geo. Rodiek
Spain—Consul.....	Luis Guillen Gil
Spain—Vice-Consul.....	T. F. Sedgwick
France—Consul.....	A. Marques
Japan—Consul-General .....	Rokuro Moroi
China—Consul.....	Tsz-Ang Woohong
Panama—Consul.....	A. Marques
Russia—Vice-Consul.....	A. Marques
Panama—Consul, Hilo.....	R. T. Guard
Brazil.....	A. D. Castro

## DEPARTMENT OF ATTORNEY GENERAL.

Attorney-General.....	I. M. Stainback
1st Deputy Atty.-General.....	A. G. Smith
2nd Deputy Atty.-General.....	W. H. Heen
Clerk of Dept.....	Miss E. A. Robinson
Stenographer.....	Ana K. Harrison
High Sheriff.....	Wm. P. Jarrett

## BOARD OF PRISON INSPECTORS.

Oahu—J. W. Waldron, J. M. Dowsett, E. H. Wodehouse.
Maui—Wm. Henning, G. Freeland, J. Garcia.
W. Hawaii—Samuel P. Woods, Julian Monsarrat, Luther S. Aungst.
E. Hawaii—W. Weight, C. E. Wright, Geo. Cool.
Kauai—A. S. Wilcox, J. M. Lydgate, H. Wolters.

## TREASURY DEPARTMENT.

Treasurer.....	C. J. McCarthy
Registrar of Public Accts.....	H. C. Hapai
Dep. Reg. and Bookkeeper.....	T. Treadway
Dep. Bank Examiner.....	W. H. Drummond
Stenographer and Typewriter.....	Edith Jordan

Clerks .....	Saml. Kekumano, S. H. Kahalewai
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## BUREAU OF CONVEYANCES.

Registrar of Conveyances.....	C. H. Merriam
Deputy Registrar.....	Geo. C. Kopa

## ASSESSORS AND COLLECTORS.

### First Division, Oahu.

Chas. T. Wilder.....	Assessor
A. W. Neely.....	Deputy 1st Division
P. J. Jarrett, H. Sing Fook, V. Fernandez, I. H. Harbottle, R. G. Ross, Ti Mito, John A. Palmer, Chas. Girdler, R. B. Reedy, M. G. K. Hopkins, Deputies, Honolulu; E. K. Lillikalani, Clerk.	
F. H. Hayselden.....	Ewa and Waianae
F. W. Holt.....	Waialua
Henry Cobb Adams.....	Koolauloa and Koolaupoko

### Second Division, Maui.

J. H. Kunewa.....	Assessor
W. E. Cockett.....	Wailuku
J. M. Ambrose.....	Lahaina
W. Henning.....	Makawao
W. H. Cooper.....	Hana
J. M. Ambrose.....	Molokai and Lanai

### Third Division, Hawaii.

O. T. Shipman.....	Assessor
D. W. Branco.....	North Hilo
G. D. Supe.....	South Hilo
Geo. Mundon.....	Puna
W. H. Lainaholo.....	Kau
W. D. Ackerman.....	Kona
S. P. Woods.....	North Kohala
Moses Koki.....	South Kohala
Robt. Gillespie.....	Hamakua

## Fourth Division, Kauai.

J. K. Farley.....	Assessor
W. K. Waiwaiole.....	Koloa
J. K. Kapuniai.....	Waimea
L. D. Timmons.....	Lihue
L. B. Boreiko.....	Hanalei
M. R. Teves.....	Kawaihau

## AUDITING DEPARTMENT.

Auditor.....	J. H. Fisher
Deputy Auditor.....	G. W. R. King
Clerks.....	A. May, Jno. W. Vannatta

## DEPARTMENT OF PUBLIC WORKS.

Superintendent.....	C. R. Forbes
Chief Clerk of Dept.....	Manuel K. Cook
Clerk.....	B. K. Ka-ne
Stenographers.....	Mrs. M. G. Schmidt, A. Wicke
Engineers .....	A. C. Wheeler, W. C. Furer
Harbor Master, Honolulu.....	Capt. W. R. Foster
Assistant.....	Capt. G. M. Curtis
Pilots, Honolulu—Capts. ....	M. A. Madsen, J. R. Macaulay, J. F. Haglund.
Harbor Master and Pilot, Hilo.....	Capt. F. Mosher
Pilot, Kahului.....	Capt. E. H. Parker

DEPARTMENT OF IMMIGRATION,  
LABOR AND STATISTICS.

Commissioners—E. H. Wodehouse, Pres-	
ident; Richard Ivers, M. M. Johnson,	
A. L. C. Atkinson, F. L. Waldron.	
Comnr. and Secty.....Ralph A. Kearns	
Clerk.....Paul Smith	

## BOARD OF HARBOR COMMISSIONERS

Chairman (ex-officio).....C. R. Forbes	
Secretary.....T. M. Church	
Jas. Wakefield, W. H. McClellan, C. J.	
McCarthy.	
Frank C. Poor.....Clerk	

## GOVERNMENT SURVEYING CORPS.

Walter E. Wall.....Surveyor	
Robt. D. King.....Office Assistant	
S. M. Kanakanui, H. E. Newton, Assts.	
Robt. O'Neal.....Draughtsman	
Mrs. Frances Martin.....Stenographer	

BOARD OF COMMISSIONERS OF AG-  
RICULTURE AND FORESTRY.

Commissioners — A. H. Rice, President;	
H. M. von Holt, W. M. Giffard, J.	
M. Dowsett, A. L. C. Atkinson.	

## Division of Forestry.

C. S. Judd—Supt. Forestry and Execu-	
tive Officer of Board.	
David Hauchs.....Forest Nurseryman	
Joseph F. Rock.....Consulting Botanist	
Bro. M. Newell. In Charge Nursery, Hilo	
W. D. McBryde.....In Charge Nursery, Kauai	

## Division of Entomology.

E. M. Ehrhorn.....	Supt. of
Entomology and Plant Inspector	
D. B. Kuhns.....Inspector's Assistant	
Bro. M. Newell.....	
.....Fruit and Plant Inspector, Hilo	
D. T. Fullaway.....Field Entomologist	
A. Buchanan.....Office Asst.	

## Division of Animal Industry.

Victor A. Norgaard, V. S.....	
.....Supt. and Territorial Veterinarian	
Dr. L. N. Case.....	Assistant
Dr. J. C. Fitzgerald, Dep. V. S.....Maui	
Dr. H. B. Elliott, Dep. V. S. ....E. Hawaii	
Dr. A. R. Rowatt. ....Dep. V. S. W. Hawaii	
Dr. A. R. Glaizer, Dep. V. S.....Kauai	
J. Richard. Dairy and Live Stock Insptr.	
Mrs. C. L. Sebolt.....Clerk and Stenog.	
Miss Florence White.....	
.....Stenog. and Librarian	
Daniel Logan.....Editor Forester	

## Division of Hydrography.

G. K. Larrison...Supt. of Hydrography	
R. C. Rice.....Office Engineer	
R. A. R. Austin.....Junior Engineer	
R. D. Klise, W. V. Hardy.....	
.....Assistant Engineers	
D. E. Horner.....Field Asst.	
J. Kaheaku.....Computer	
E. E. Goo.....Clerk	

## BOUNDARY COMMISSIONERS.

Oahu-Maui.....M. D. Monsarrat	
Hawaii....Wm. S. Wise, C. F. Parson, Hilo	
.....J. A. Matthewman, Kailua	
Kauai.....Lyle A. Dickey	

## FENCE COMMISSIONERS.

Honolulu—John Markham, C. J. Camp-	
bell, Norman E. Gedge.	
Ewa and Waianae—E. W. White, C. A.	
Brown.	
Waialua—R. Kinney, W. B. Thomas.	
Makawao—G. S. Goodness, Hugh Howell,	
E. H. Brown.	
N. Kona—A. S. Wall, Thos. Silva, J. Ka-	
elemakule.	
S. Kona—E. K. Kaaua, L. P. Lincoln, A.	
Haile.	
Kau—Geo. Campbell, C. G. Macomber, G.	
J. Becker.	
Puna—H. J. Lyman, G. D. Supe.	
Molokai—S. Fuller, James G. Munro,	
H. R. Hitchcock.	

LIQUOR LICENSE COMMISSIONERS..  
City and County of Honolulu.

F. D. Lowrey.....	Chairman
C. A. Long.....	Secretary
R. A. Cooke, J. O. Carter, L. M. Vetlesen	
.....County of Maui.	
T. B. Lyons.....	Chairman
C. D. Lufkin, D. C. Lindsay, W. F.	
Kaae, D. H. Case.	

## County of Hawaii.

John T. Moir.....Chairman  
R. T. Guard, T. C. White, Saml P.  
Woods, J. D. Easton.

## County of Kauai.

W. H. Rice, Sr.....Chairman  
G. N. Wilcox, W. D. McBryde, B. D.  
Baldwin, J. R. Meyers.

## DEPARTMENT OF PUBLIC LANDS.

B. G. Rivenburg.....Commissioner  
Walter A. Engle.....Chief Clerk  
Henry Peters.....First Clerk  
Wm. J. Coelho.....Translator  
H. L. Kinslea.....Third Clerk  
Miss Rose Holt.....Fourth Clerk

## Sub-Agents.

1st District, Hilo and Puna.....Jos. G. Andrews  
2nd District, Hamakua.Jos. G. Andrews  
3rd District, Kona.....Julian K. Yates  
3rd District, Kau.....W. H. Hayselden  
4th District, Maui.....W. O. Aiken  
5th District, Oahu.....W. A. Engle  
6th District, Kauai.....W. D. McBryde  
Miss B. Hundley, Asst.

## LAND BOARD.

Dr. J. H. Raymond.....Chairman  
W. C. Wilder.....Vice-Chairman  
J. F. Brown.....Secretary  
J. W. Waldron, W. H. C. Campbell,  
B. Cartwright, Jr.

BOARD OF COMMISSIONERS OF  
PUBLIC ARCHIVES.

Chairman ex-officio.....W. W. Thayer  
Commissioners—A. G. M. Robertson, M.  
M. Scott.  
Librarian.....R. C. Lydecker  
Translator.....Stephen Mahaulu

DEPARTMENT OF PUBLIC IN-  
STRUCTION.

Superintendent.....H. W. Kinney  
Commissioners.

Oahu.....L. G. Blackman, Mrs. Theo. Richards  
Maui.....D. C. Lindsay  
Hawaii.....Mrs. B. D. Bond, W. H. Smith  
Kauai.....E. A. Knudsen  
Inspector, Normal.....Geo. S. Raymond

## Supervising Principals—

Oahu—James C. Davis.  
Maui—Wm. McCluskey.  
Hawaii, East—Bertha B. Taylor; Hawaii,  
West—Eugene Horner.  
Kauai—Bernice Hundley.  
Secretary.....Miss Daisy Smith  
Asst. Secretary.....C. K. Stillman, Jr.  
Asst. Clerk.....Miss Eleanor L. Holt  
Asst. Clerk.....H. H. Williams

## Board of Examiners.

Geo. S. Raymond, Bertha B. Taylor,  
Eugene Horner, James C. Davis.  
Cyril O. Smith.

## Board Industrial Schools.

W. L. Whitney, Mrs. A. L. Andrews,  
Rev. V. Franckx, A. F. Griffiths,  
C. B. Cooper, Miss B. Taylor.

## BOARD OF HEALTH.

President.....Dr. J. S. B. Pratt  
Members—C. J. Campbell, Dr. W. C. Hob-  
dy, I. M. Stainback (ex-officio), G. P.  
Denison, Jno. Markham, G. J. Waller.  
Secretary.....K. B. Porter  
Sanitary Engineer.....S. W. Tay  
Chief Sanitary Officer, Oahu.C. Charlock  
Supt. Tuberculosis Bureau.....  
.....Dr. L. L. Patterson  
Registrar Genl. Births and  
Marriages.....Miss M. Hester Lemon  
Chief Clerk.....W. K. Simerson  
Asst. Clerk.....G. A. Hapai  
Stenographer.....Miss M. Weir  
Food Commissioner and Analyst....  
.....A. W. Hanson  
Supt. Insane Asylum.Dr. W. A. Schwallie  
Supt. Leper Settlement.....J. D. McVeigh  
Resident Physician..Dr. W. J. Goodhue  
Chief Sanitary Officer, Hawaii—D. S.  
Bowman.  
Chief Sanitary Officer, Maui—J. L.  
Osmer.  
Chief Sanitary Officer, Kauai—F. B.  
Cook.

## Government Physicians.

Oahu—  
H. Wood.....Walalua  
Geo. B. Tuttle.....Koolaupoko  
R. J. McGgettigan.....Ewa and Waianae  
C. Buffett.....Koolauloa  
Maui—  
Franklin Burt.....Lahaina  
W. F. McConkey.....Makawao and Kula  
R. C. Lichtenfels.....Hana  
Wm. Osmers.....Wailuku  
F. L. Sawyer.....Puunene and Kihei  
C. P. Durney..Kula and Upper Makawao  
Hawaii—  
E. S. Goodhue.....N. Kona  
H. L. Ross.....S. Kona  
B. D. Bond.....N. Kohala  
R. G. Miller..Hamakua and S. Kohala  
L. L. Sexton.....S. Hilo  
W. D. Whitman.....N. Hilo  
Frederick Irwin.....Puna  
K. Hoffmann .....Kauai—  
F. A. Lyman.....Waimea  
A. H. Waterhouse.....Koloa  
F. L. Putnam.....Lihue  
K. Yanagihara.....Hanalei  
J. M. Kuhns.....Kawaihau

## INDUSTRIAL ACCIDENT BOARD.

City and County of Honolulu—R. B.  
Booth, A. J. Campbell, F. O. Boyer,  
F. S. Steere, A. J. Wirtz.

**Maui**—W. H. Field, W. J. Cooper, Geo. Weight, W. L. Decoto, W. A. McKay.

**Hawaii**—D. Ewaliko, H. B. Elliot, Jas. Webster, H. A. Truslow.

**Kauai**—J. H. Moragne, H. H. Brodie, J. M. Lydgate, E. E. Mahlum, L. D. Timmons.

#### CIVIL SERVICE COM. BRD. HEALTH.

W. C. McGonagle, W. Wolters,  
Dr. F. F. Hedemann.

#### BOARDS OF EXAMINERS.

**Medical**—Dr. R. W. Benz, Dr. J. T. McDonald, Dr. Grover A. Batten.

**Pharmacy**—Samuel S. Peck, Dr. F. F. Hedemann.

**Dental**—A. J. Derby, M. E. Grossman, C. B. High.

**Veterinary**—V. A. Norgaard, W. T. Monsarrat, H. B. Elliott.

#### COMMISSIONERS OF INSANITY.

L. J. Warren.....Chairman  
Drs. C. B. Cooper, G. H. Herbert.

#### PUBLIC UTILITIES COMMISSION.

Established 1913.

Chairman.....Chas. R. Forbes  
Members .....W. T. Carden, A. J. Gignoux

#### CHAMBER OF COMMERCE OF HONOLULU.

Reorganized May 27, 1914.

President.....Geo. W. Smith  
First Vice-Pres.....J. F. C. Hagens  
Second Vice-Pres.....Norman E. Gedge  
Treasurer.....J. L. Cockburn  
Secretary.....Raymond C. Brown  
Directors—Geo. H. Angus, E. A. Berndt, F. E. Blake, A. J. Campbell, A. L. Castle, J. P. Cooke, R. A. Cooke, Richard Ivers, A. Lewis, Jr., F. J. Lowrey, J. N. S. Williams, T. H. Petrie, George Rodiek, J. E. Sheedy, E. I. Spalding, Wm. Thompson, E. O. White.

#### MAUI CHAMBER OF COMMERCE.

President.....R. A. Wadsworth  
Vice-President.....H. W. Rice  
Secretary.....D. H. Case  
Treasurer.....C. D. Lufkin

#### HILO BOARD OF TRADE.

Organized ....

President.....Wm. McKay  
Vice-President .....G. H. Vicars  
Secretary-Treasurer.....E. N. Deyo  
Directors—Ed. Guard, I. W. Russell, D. M. Forbes, C. Shimamoto, D. S. Bowman, Geo. A. Cool, C. E. Wright, C. C. Kennedy.

#### KAUAI CHAMBER OF COMMERCE.

Organized 1913.

President .....F. Patterson  
Vice-President .....T. Brandt  
Secretary .....L. D. Timmons  
Treasurer .....J. I. Silva  
Auditor .....W. N. Stewart

#### HAWAII PROMOTION COMMITTEE.

Chairman .....E. A. Berndt  
G. H. Vicars, W. O. Aiken, W. H. Rice, Jr., G. H. Angus, W. D. Adams, J. D. McInerny, A. F. Wall.  
Secretary-Director.....A. P. Taylor  
Young Hotel, Honolulu.  
Pacific Coast Ag'cy, Fred. J. Halton, Agt. Room 397 Monadnock Block, San Francisco, Cal.

#### HONOLULU STOCK AND BOND EXCHANGE.

Organized August 8, 1898.

President .....J. L. Fleming  
Vice-President .....H. B. Giffard  
Secretary .....D. L. Conkling  
Treasurer .....Guardian Trust Co.

#### HAWAIIAN SUGAR PLANTERS' ASSOCIATION.

Re-organized Nov. 18, 1895.

President .....Geo. Rodiek  
Vice-President .....E. D. Tenney  
Secretary and Treasurer....W. O. Smith  
Assistant Sec.-Treas.....L. J. Warren  
Auditor .....J. W. Waldron

#### EXPERIMENT STATION OF PLANTERS' ASSOCIATION.

Station Staff.

H. P. Agee.....Director  
R. C. L. Perkins, A. Koebele.....Consulting Entomologists  
Otto H. Swezey, F. Muir.....Entomologists  
H. T. Osborn, P. H. Timberlake, F. X. Williams....Asst. Entomologists  
H. L. Lyon.....Pathologist  
E. L. Caum, R. E. Doty.....Asst. Pathologists  
R. S. Norris.....Sugar Technologist  
W. R. McAllep.....Asst. Sugar Technologist  
P. S. Burgess.....Chemist

F. R. Werthmueller, Geo. H. Hutchinson, G. R. Haddock. Asst. Chemists  
 J. P. Melanphy.....Fertilizer Sampler  
 L. D. Larsen.....Agriculturist  
 J. A. Verret, R. S. Thurston, W. P. Alexander, R. M. Allen, L. T. Lyman, J. T. Moir, Jr., J. S. B. Pratt, Jr.....Associate and Asst. Agriculturists  
 W. R. R. Potter.....Illustrator  
 H. B. Campbell.....Business Agent

**HAWAIIAN CHEMISTS' ASSOCIATION**

President.....H. S. Walker  
 Vice-President.....W. F. Duker  
 Secretary-Treasurer.....S. S. Peck  
 Executive Committee—H. W. Robbins, A. Kraft, W. McAllep, A. Fries, H. Johnson, C. C. James.

**HAWAIIAN ENGINEERING ASSOCIATION**

Organized ....

Chairman.....C. B. Andrews  
 Vice-Chairman.....R. R. Hind  
 Secretary.....F. C. Boyer  
 Treasurer .....Irwin Spalding

**HAWAIIAN ENTOMOLOGICAL SOCIETY.**

Organized 1905.

President.....E. M. Ehrhorn  
 Vice-President.....J. F. Illingworth  
 Secretary and Treas.....O. H. Swezey  
 The above officers also constitute the Executive Committee.  
 Editor of Proceedings.....O. H. Swezey

**BOARD OF MARINE UNDERWRITERS —AGENCIES**

Boston.....C. Brewer & Co.  
 Philadelphia.....C. Brewer & Co.  
 New York.....Bruce Cartwright  
 Liverpool.....Theo. H. Davies & Co.  
 Lloyds, London.....Theo. H. Davies & Co.  
 San Francisco.....Bishop Ins. Agency  
 Bremen.....F. A. Schaefer

**BOARD OF FIRE UNDERWRITERS OF TERRITORY OF HAWAII.**

Jno. Waterhouse.....President  
 B. von Damm.....Vice-President  
 F. A. Bechert.....Secretary  
 H. Hackfeld & Co.....Treasurer  
 Audit Co. of Hawaii.....Auditor

**QUEEN'S HOSPITAL.**

Erected in 1860.

President.....Geo. W. Smith  
 Vice-President.....A. J. Campbell  
 Secretary.....Bruce Cartwright, Jr.  
 Treasurer.....Geo. C. Potter  
 Auditor.....Audit Co. of Hawaii  
 Surgeons—Drs. R. W. Benz, E. D. Kilbourne.  
 Physicians—Drs. I. J. Shepherd, F. L. Morong.  
 Resident Physician.....Dr. F. F. Alsup  
 Intern.....Dr. Strode  
 Specialist.....Dr. J. A. Morgan

Superintendent ..... Werner Roehl  
 Bookkeeper.....C. J. Daub  
 Head Nurse.....Agnes H. Collins R.N.  
 Housekeeper ..... Mrs. F. Kuhlmann  
 Trustees—A. J. Campbell, G. W. Smith, G. C. Potter, W. A. Love, B. Cartwright, Jr., L. Tenney Peck, J. E. Jaeger.

**LEAHI HOME.**

Organized April 4, 1900.

President.....A. A. Young  
 Vice-President.....C. Montague Cooke  
 Secretary.....C. R. Hemenway  
 Treasurer.....A. W. T. Bottomley  
 Auditor.....W. F. Dillingham  
 Medical Supt. A. N. Sinclair, M. B. C. M. Asst. Supt. .... Robt. Anderson  
 Matron.....Mrs. A. B. Chamberlain  
 Nurses.....Miss McBryde, Miss Ford  
 Clerk.....L. J. Fagg

**CHILDREN'S HOSPITAL.**

Opened Nov. 24, 1909.

President.....S. B. Dole  
 Vice-President.....Geo. P. Castle  
 Secretary ..... Irene Dyches  
 Treasurer.....W. O. Smith  
 Auditor.....Audit Co. of Hawaii  
 Superintendent.....Miss J. N. Dewar  
 Trustees—S. B. Dole, W. O. Smith, G. P. Castle, A. S. Wilcox, Allen Herbert, Geo. B. Isenberg, E. A. Mott-Smith.

**HOSPITAL FLOWER SOCIETY.**

President.....Mrs. A. F. Judd  
 Vice-President.....Mrs. A. Gartley  
 Secretary ..... Mrs. S. W. Jordan  
 Treasurer.....Mrs. W. N. Soper  
 President ..... E. Kopke  
 Vice-President ..... Edgar Wood

**SAILORS' HOME SOCIETY.**

Organized 1853.

Meets annually in December.

President.....F. A. Schaefer  
 Secretary ..... C. H. Atherton  
 Treasurer ..... Jno. Waterhouse  
 Trustees—J. A. Kennedy, Geo. Rodiek, R. Ivers.

**CIVIC FEDERATION.**

Organized Jan. 26, 1905.

President ..... E. Kopke  
 Vice-President ..... Edgar Wood  
 Secretary ..... G. W. Paty  
 Treasurer ..... J. M. McChesney

**DAUGHTERS OF HAWAII.**

Hon. Regent.....Mrs. B. F. Dillingham  
 Presiding Regent .....  
 First Vice-Regent.....Mrs. C. S. Holloway  
 Second Vice-Regent .....  
 Historian.....Miss Anna Paris  
 Cor. Secretary ..... Mrs. Geo. Potter  
 Rec. Secretary ..... Mrs. A. P. Taylor  
 Treasurer ..... Mrs. A. Gartley

**TERRITORIAL LIBRARY.  
HONOLULU LIBRARY ASSOCIATION.**  
Organized March.

Incorporated June 24, 1879.  
President..... Prof. M. M. Scott  
Secretary..... J. H. Fisher  
Treasurer..... A. Gartley  
Auditor..... J. H. Fisher

**LIBRARY OF HAWAII.  
Trustees.**

C. H. Atherton..... President  
Rev. H. B. Restarick..... Vice-President  
J. R. Galt..... Treasurer  
P. L. Weaver..... Secretary  
F. E. Blake, Mrs. L. L. McCandless,  
Rev. W. D. Westervelt.

Library Staff.

Edna I. Allyn..... Librarian  
Maud Jones..... Loan Desk Asst.  
Elizabeth M. Richards..... Cataloguer  
Carrie P. Green..... Reference Librarian  
Mary S. Lawrence..... Children's Librarian  
Akana K. Ma..... Clerk  
Helen K. Stearns..... Islands Dept.

**HAWAIIAN HISTORICAL SOCIETY.**  
Organized Jan. 11, 1892.

President..... Sanford B. Dole  
Vice-Presidents—W. F. Frear, W. A.  
Bryan, J. S. Emerson.  
Recording Secretary..... Edgar Wood  
Cor. Secretary..... W. D. Westervelt  
Treasurer..... Bruce Cartwright, Jr.  
Librarian..... Miss E. I. Allyn

**KAUAI HISTORICAL SOCIETY.**

President..... Wm. Hyde Rice  
Vice-President..... J. M. Lydgate  
Sec.-Treas..... Miss E. N. Wilcox

**BERNICE PAUAHI BISHOP MUSEUM.**  
Board of Trustees.

Albert F. Judd..... President  
E. F. Bishop..... Vice-President  
A. W. Carter..... Secretary  
J. M. Dowsett..... Treasurer  
W. O. Smith, H. Holmes.

Museum Staff.

William T. Brigham, A. M., D. Sc.... Director  
W. H. Dall, D. Ph., Hon. Cur. of Molusca

John F. G. Stokes..... Curator of Polynesian Ethnology  
C. Montague Cooke, Jr., D. Ph..... Curator of Pulmonata

C. N. Forbes..... Curator of Botany  
Otto H. Swezey..... Hon. Curator of Entomology

Miss E. B. Higgins..... Librarian  
Miss M. Claire Steinbring, Library Asst.

Mrs. E. Helvie..... Superintendent of Exhibition Halls  
J. W. Thompson..... Artist and Modeler

John J. Greene..... Printer  
August Perry..... Assistant Printer

R. H. Lambert..... Director's Assistant

**HAWAIIAN PHILATELIC SOCIETY.**  
Organized April 13, 1911.

President..... Capt. C. B. Parker, U.S.A.  
Vice-President..... C. D. Wright  
Secretary..... C. J. Cooper  
Treasurer..... E. M. Ehrhorn

**Y. M. C. A. CHESS CLUB.**  
Organized Oct. 17, 1913.

President..... F. S. Hafford  
Vice-President..... A. L. Mackaye  
Sec.-Treasurer..... A. E. Larimer

**HAWAIIAN MEDICAL ASSOCIATION.**  
Organized May 24, 1895.

President..... Dr. E. D. Kilbourne  
Vice-President..... Dr. F. E. Trotter  
Secretary..... Dr. A. F. Jackson  
Treasurer..... Dr. I. J. Shepherd  
Directors—Dr. J. T. McDonald, Dr. A.  
G. Hodgins.

**HAWAIIAN SOCIETY SONS OF THE  
AMERICAN REVOLUTION.**

Organized June 17, 1895.  
President..... W. A. Bryan  
Vice-President..... G. P. Wilder  
Secretary..... J. T. Taylor  
Treasurer..... J. W. Jones  
Registrar..... H. C. Mohr  
Board of Managers—G. H. Tuttle, L. R.  
Killam, C. S. Carlsmith.

**ALOHA CHAPTER, DAUGHTERS OF  
THE AMERICAN REVOLUTION.**

State Regent..... Mrs. W. Alanson Bryan  
Chapt. Regent..... Mrs. Hermann Hugo  
Vice-Regent..... Mrs. J. M. Atherton  
Recording Sec. .... Miss Carolyn Church  
Treasurer..... Miss Charlotte V. Hall  
Registrar..... Mrs. C. B. Andrews  
Historian..... Mrs. J. W. Caldwell  
Chaplain..... Mrs. A. F. B. Judd

**HAWAIIAN EVANGELICAL  
ASSOCIATION.**

Originally Organized 1823.  
Constitution revised 1863. Annual Meet-  
ing June.

President..... F. J. Lowrey  
Vice-President..... A. C. Alexander  
Cor. Secty. (act'g)..... Rev. H. P. Judd  
Rec. Secretary..... Rev. J. L. Hopwood  
Treasurer..... Theo. Richards  
Auditor..... Wm. J. Forbes

**WOMAN'S BOARD OF MISSIONS.**  
Organized 1871.

President..... Mrs. Theo. Richards  
Vice-Presidents—Miss Alice Knapp, Mrs.  
H. P. Judd.  
Recording Secty.... Mrs. R. D. Williams  
Home Cor. Secty..... Edgar Wood  
Foreign Cor. Secty..... Miss A. E. Judd  
Treasurer..... Mrs. B. F. Dillingham

**BAR ASSOCIATION OF HAWAII.**  
Organized June 28, 1899.

President..... W. F. Frear  
Vice-President..... J. W. Cathcart  
Secretary..... E. W. Sutton  
Treasurer..... A. M. Cristy

## MISSION CHILDREN'S SOCIETY.

Organized 1851. Annual Meeting June.

President.....Miss Agnes Judd  
 Vice-President.....Geo. R. Carter  
 Secretary.....Mrs. R. W. Andrews  
 Recorder.....R. W. Andrews  
 Treasurer.....L. A. Dickey

## YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting April.

President.....F. C. Atherton  
 Vice-President.....W. G. Hall  
 Treasurer.....R. A. Cooke  
 Rec. Secretary.....Robert Anderson  
 Executive Secty.....Arthur E. Larimer  
 Associate Exec. Secty.....Jay A. Urice  
 Associate Secty.....Geo. A. Andrus  
 Membership Secty.....Richard Whitcomb  
 Business Secty.....Floyd H. Emmans  
 Physical Director.....Glenn E. Jackson  
 Educational Secty.....Rolla K. Thomas  
 Office Secretary.....J. W. McCrillis  
 Community Boys' Secy. Saml. W. Robley  
 Oriental Dept.....Ray Baird  
 Boys' Dept.....Donald Ladd

## YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

Hon. President....Mrs. B. F. Dillingham  
 President.....Mrs. W. F. Frear  
 Vice-Presidents—Mrs. A. F. Jackson,  
 Mrs. A. L. Andrews.  
 Secretary.....Mrs. F. C. Atherton  
 Cor. Secretary.....Mrs. Chas. T. Fitts  
 Treasurer.....Mrs. I. J. Shepherd  
 General Secretary.....Miss C. B. Chandler  
 Asst. Secretary.....Miss C. C. Varney

## WOMAN'S CHRISTIAN TEMPERANCE UNION OF HAWAII.

Organized December, 1884.

President.....Mrs. J. M. Whitney  
 Vice-President.....Mrs. Ida Weedon  
 Recording Secty.....Miss Florence Yarrow  
 Cor. Secretary.....Mrs. E. W. Jordan

## FREE KINDERGARTEN AND CHILDREN'S AID ASSOCIATION.

Organized 1895.

President.....Mrs. F. M. Swanzy  
 Vice-Presidents—Mrs. W. F. Frear, Mrs.  
 Theo. Richards, Mrs. S. B. Dole.  
 Recording Secty.....Mrs. I. M. Cox  
 Treasurer.....Mrs. E. A. Rath  
 Auditor.....J. L. Cockburn

## ASSOCIATED CHARITIES.

Organized June 7, 1899.

President.....J. R. Galt  
 1st Vice-President.....Hon. S. B. Dole  
 2nd Vice-President.....  
 .....Mrs. F. W. Macfarlane  
 Treasurer.....R. J. Buchly  
 Secty. and Manager.....Edgar Brooks

## STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting June.  
 President.....Mrs. A. Fuller  
 Vice-Presidents—Mrs. S. B. Dole, Mrs.  
 A. A. Young.

Secretary.....Mrs. S. M. Damon  
 Treasurer.....Mrs. E. W. Jordan  
 Auditor.....E. W. Jordan  
 Directress.....Mrs. E. B. Waterhouse

## BRITISH ASSOCIATION OF HAWAII.

Organized 1869.

President (ex-officio)....H.B.M.'s Consul  
 Vice-President.....Rev. Wm. Ault  
 Secretary.....A. L. C. Atkinson  
 Treasurer.....W. H. Baird  
 Directors—J. N. S. Williams, W. F. Wil-  
 son, J. Muirhead, Robt. Anderson,  
 Jas. Megill, D. C. Lindsay for Maui,  
 E. Madden for Hawaii, G. K. Ewart,  
 Jr., for Kauai.

## GERMAN BENEVOLENT SOCIETY.

Organized August 22, 1856.

President.....Geo. Rodiek  
 Vice-President.....B. von Damm  
 Secretary.....Emil Klemme  
 Treasurer.....H. A. Schroeder  
 Auditor.....H. Hugo

## HAWAIIAN RELIEF SOCIETY.

Organized 1895.

President.....Mrs. C. S. Holloway  
 Secretary.....Mrs. E. S. Cunha  
 Treasurer.....Mrs. F. W. Macfarlane

## PORTUGUESE CHARITABLE SOCIETY.

Organized 1902. Reorganized 1915.

President.....J. A. R. Vieira  
 Vice-President.....J. Ross  
 Secretary.....F. R. Tranquada  
 Treasurer.....J. D. Marques

## HAWAIIAN HUMANE SOCIETY.

President.....Mrs. L. L. McCandless  
 Hon. President.....Mrs. S. B. Dole  
 Vice-Presidents—Mrs. S. M. Damon,  
 Mrs. R. D. Mead, Mrs. B. Wal-  
 bridge, Mrs. E. P. Low, Mrs. W.  
 R. Castle, Mrs. C. S. Holloway.  
 Secretary.....Mrs. M. F. Prosser  
 Treasurer.....Mrs. W. J. MacNeil  
 Auditor.....H. M. Dowsett  
 Agent.....Mrs. Irmgard Elgin  
 Hon. Agent.....Miss Lucy K. Ward

## OAHU CEMETERY ASSOCIATION.

President.....F. J. Lowrey  
 Vice-President.....S. G. Wilder  
 Secretary.....H. H. Walker  
 Treasurer.....Hawaiian Trust Co.

## ANTI-SALOON LEAGUE OF HAWAII.

Organized March 4, 1901.

Superintendent.....John W. Wadman  
 President.....D. C. Peters  
 Vice-President.....W. D. Westervelt  
 Vice-Pres. Honorary. Mrs. J. M. Whitney  
 Secretary.....Geo. W. Paty  
 Treasurer.....C. H. Dickey

**THE OUTDOOR CIRCLE.**

(For the beautifying of Honolulu.)

President.....	Mrs. F. J. Lowrey
Vice-President.....	Mrs. L. A. Thurston
Sec.-Treas.....	Mrs. W. L. Moore
Ex. Officer.....	Mrs. A. E. Murphy

**PACIFIC CLUB.**

Organized 1852. Premises on Alakea Street, two doors below Beretania.

President.....	J. F. C. Hagen
Vice-President.....	Dr. St. D. G. Walters
Secretary.....	A. L. C. Atkinson
Treasurer.....	J. L. Fleming
Governors—	W. H. Baird, J. O. Carter, E. I. Spalding, Dr. C. B. Cooper, A. J. Campbell, with the above officers, comprise the Board.

**UNIVERSITY CLUB.**

Organized 1905.

President.....	Dr. H. V. Murray
Vice-President.....	R. B. Anderson
Secretary.....	H. G. Dillingham
Governors—	F. E. Steere, Capt. Geo. R. Clark, U.S.N.

**COMMERCIAL CLUB OF HONOLULU.**

Organized Aug. 30, 1906.

President.....	J. E. Sheedy
Vice-President.....	S. S. Paxson
Secretary.....	J. F. Fenwick
Treasurer.....	S. M. Lowrey

**BRITISH CLUB.**

Club Rooms Campbell Block.

President.....	Fred. Harrison
Vice-President.....	Robert Anderson
Secretary.....	J. C. Veitch
Treasurer.....	W. F. Wilson

**COUNTRY CLUB.**

Organized 1906.

President.....	E. I. Spalding
1st Vice-President.....	A. C. Wall
2nd Vice-President.....	A. F. Judd
Secretary.....	G. H. Buttolph
Treasurer.....	F. T. P. Waterhouse

**OUTRIGGER CLUB.**

Organized May, 1908.

President.....	H. B. Campbell
Vice-President.....	G. H. Buttolph
Secretary.....	J. A. Beavens
Treasurer.....	L. C. Thompson
Captain.....	J. O. Carter

**HUI NALU (Surf Club).**

Organized 1911.

President.....	Wm. T. Rawlins
Vice-President .....	Al. Castle
Secretary .....	Harry Bertelmann
Treasurer .....	Alex. May
Commodore.....	E. K. Miller
Captain.....	Duke Kahanamoku
Auditor.....	J. K. Evans

**HAWAII YACHT CLUB.**

Commodore.....	F. M. Hatch
Vice-Commodore.....	F. B. Smith
Secretary and Treasurer.....	C. T. Wilder
Measurer.....	O. L. Sorenson
Captain.....	C. T. Wilder

**MYRTLE BOAT CLUB.**

Organized Feb. 5, 1883.

President.....	J. H. Schnack
Vice-President .....	Irwin Spalding
Secretary .....	A. J. Porter
Captain .....	Geo. Crozier

**HEALANI YACHT AND BOAT CLUB.**

Incorporated Dec., 1894.

President .....	Paul Jarrett
Vice-President .....	H. Lempke
Secretary .....	G. E. Low
Treasurer .....	G. E. Gall
Captain .....	Chas. Brown
Vice-Captain .....	J. Hollinger
Commodore .....	C. E. Dickson

**AD CLUB.**

President.....	W. R. Farrington
1st Vice-President.....	J. D. Levenson
2nd Vice-President.....	J. T. Warren
Secretary.....	H. L. Strange
Treasurer.....	C. R. Frazier

**OAHU COLLEGE.**

Punahou Academy.

Arthur F. Griffiths, A. M.—President, (on leave).	
Levi C. Howland—Acting Pres., Head of Commercial Dept.; Asst. Business Agent.	
Susan G. Clark—Latin.	
Wilbur J. MacNeil—Science.	
Antoinette J. Foster, Arthur Silverman, English.	
Charlotte P. Dodge—History.	
Eda A. Schmutzler, Elsa G. Downer— French.	
Charles F. Schmutzler—German, Latin.	
Ernest T. Case—Acting Principal, Math- ematics.	
Clara M. Brawthen—Commercial; Edith W. Gould, Asst.	
Ethel M. Damon — French, History, Latin.	
Agnes P. Driver—Physical Instruction of Girls.	
Frank E. Midkiff—Mathematics, Eng- lish, Military Instruction.	
Jane L. Winne—School Singing.	
Helei M. Scott—Drawing.	
Wallace W. Brier—English, Latin.	
G. L. Bergmann—Mathematics; Di- rector Boarding Department.	
Sarah E. Mathews—History.	
Carl E. Sager—Mathematics, Science. Drawing.	
Jean Porterfield—Oral Expression.	
Mabel M. Hawthorne—Librarian; Violet D. Austin, Asst.	
Jonathan Shaw—Business Agent.	

Frank Barwick—Supt. of Grounds.	Minnie E. Chipman .....
H. G. Wootten—Engineer.	Professor of Ceramics and Design
C. H. Johnson, Aileen L. Gibb—Office Secretaries.	Arnold Romberg, B.S., Ph.D..... Professor of Physics
E. D. Kilbourne, M.D.—Medical Examr.	Florence M. Lee, B. S..... Asst. Prof. of Domestic Science
Capt. Wm. E. Hunt—Military Instruction.	Leslie C. Clark, B.S..... Asst. Prof. of Animal Husbandry
Punahou Music School.	Mildred M. Yoder, Ph.B..... Instructor in History and Economics
Margaret E. Clarke, Director—Piano and Organ.	John McTaggart .....
Helen G. Cadwell—Piano and Voice.	Instructor in Shop Work
Pearl Sutherland—Piano.	Maria Heuer .....
Edwin Herbert Ideler—Violin.	Asst. Prof. of Modern Languages
Emily L. Parrish, G. L. Aitken—Piano.	Alice A. Ball, Ph.C., B.S., M.S..... Instructor in Chemistry
Punahou Preparatory School.	George H. W. Barnhart, B.S..... Instructor in Engineering
Charles T. Fitts—Principal (on leave).	Carl B. Andrews, B.S., M.S..... Instructor in Railroad Surveying
Mary P. Winne—Acting Principal.	Alice E. Harbaugh..... Asst. in Drawing and Ceramics
Claire H. Uecke—First Grade.	Henry Z. Pratt, Jr., C.E..... Instructor in Engineering
Emma Barnhard — First and Second Grades.	Elizabeth L. Bryant, Sc.D..... Librarian
Maurine Samson—Second and Third Grades.	
Florence N. Carter, Acting Vice-Principal—Second Grade.	
Anna F. Johnson, Nina F. Burkley — Sixth Grade.	
Elanche M. Folsom, Hope Y. Lytle — Fifth Grade.	
Harriet R. Crumpton—Eighth Grade.	
Agnes P. Driver—Physical Instruction.	
Evangeline Holmes—Eighth Grade and Mathematics.	
Frederica B. Davis, Helen E. Hasty — Seventh Grade.	
Jane L. Winne—School Singing.	
Emily S. Maddux, M. McKinley, M. P. Merrill—Third and Fourth Grades.	
Helen M. Scott—Hand-Work and Art.	
Jean Porterfield—Reading.	
May T. Kluegel—Fifth and Sixth Grades.	
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BOARD OF REGENTS, COLLEGE OF HAWAII.	
Wallace R. Farrington..... Chairman	Principal..... Jno. F. Nelson
Arthur L. Dean..... Secretary	Assistants—Messrs. Lynch, Stone, Yost, Blowers, Lancaster, Bettin, Mears, Ross, Pettyjohn, Sakai, T. K. Yan.
Regents—Alonzo Gartley, C. R. Hemmenway, Mrs. J. R. Ashford, F. L. Waldron.	Misses: A. M. Bille, E. A. Jones, A. McKittrick E. M. Bird.
<hr/>	
The Faculty.	
Arthur L. Dean, A.B., Ph.D..... Pres. and Prof. of Chemistry	THE KAMEHAMEHA SCHOOLS.
John S. Donaghho, A.B., A. M..... Prof. of Math. and Astronomy	E. C. Webster..... President
John M. Young, B.S., M.E..... Prof. of Engineering, College Engr.	J. L. Hopwood..... Chaplain
William A. Bryan, B.S.. Prof. of Zoology	C. D. Bishop.... Acct. and Purch. Agent
Arthur E. Keller, C. E., LL.B..... Prof. of Civil Engineering	Dr. E. D. Kilbourne..... Physician
Frank T. Dillingham, B. S..... Prof. of Chemistry	Lillian M. Osgood.. President's Secretary
Arthur L. Andrews, B.L., M.L., Ph.D..... Professor of English	C. R. Bostwick..... Principal
Vaughan MacCaughay, B.S.A..... Professor of Botany	U. Thompson..... Science
James F. Illingworth, B.S., Ph.D..... Professor of Entomology	C. G. Livingston..... Drawing
Herbert S. Walker, A.B..... Professor of Sugar Technology	E. G. Bartlett..... Mathematics
L. A. Henke..... Prof. of Agronomy	T. E. Lommen..... Mathematics
Joseph F. C. Rock..... Botanist	M. E. Crosman..... Wood-working
	J. J. Mengel. Blacksmithing and Forging
	E. E. Baty..... Electrician
	J. T. Boyd..... Machinist
	N. G. Smith..... Painter
	R. J. Borden..... Agriculturalist
	Geo. Benjamin..... Asst. Wood-working
	Ruth B. Muzzy..... Music and Singing
	Miss Emma Winslow..... English and Geography
	Capt. A. J. Booth..... Commandant

**Boys' School Preparatory Department.**

Miss Alice Knapp.....Principal  
 Maud Post.....Primary  
 Nevada Moore.....Manual Training  
 Myrtle Campbell.....3d and 4th Grades  
 Corla Crane.....1st and 2d Grades  
 Laura C. Hillmer.....Matron  
 J. E. Maxwell, Lucilla Kamakawiwo-  
 ole .....Matron's Assistants  
 Julia Coleman, Alice E. Keyes.....  
 Office Assistants  
 A. G. Hottendorf.....Printing

**Girls' School.**

Miss Abbie H. Newton.....Principal  
 Frances Lemmon.....Mathematics and Civics  
 Harriet McCracken, Winifred Farwell  
 .....Matrons  
 Carolyn Church.....Domestic Arts  
 Anna M. Reid.....English  
 Katharine Burgner .....Geography  
 Donna Sisson.....Drawing  
 Lydia K. Aholo.....Sten. and Typewriting  
 Gertrude Knowles.....Music  
 Ora Saunders....Nurse, and Physiology  
 Lena M. Giddings.....Dressmaking  
 Hazel S. Markley—History and Reading.  
 Irene Sylva, Lydia K. Aholo.....  
 .....Office Assistants  
 Eliza Nainoa, Daisy Bell, Keahi  
 Aholo .....Matron's Assistants

**HONOLULU (STEAM) FIRE DEPARTMENT.**

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid dept.  
 Chief Engineer—Chas. Thurston.  
 Asst. Engineer—Wm. Blaisdell.  
 Engine No. 1—Location Central Station, cor. Fort and Beretania streets.  
 Engine No. 2—Location, Central Sta-  
 tion, cor. Fort and Beretania Sts.  
 Chemical Co. No. 1—Location, Central Station, cor. Fort and Beretania Sts.  
 Hook and Ladder Truck—Location, Central Station, cor. Fort and Beretania.  
 Engine Co. No. 3—Location cor. Wilder avenue and Piikoi street.  
 Engine Co. No. 4—Location King street and Austin lane.  
 Engine Co. No. 5—Location Kaimuki.

**PRINCIPAL PUBLICATIONS.**

The Hawaiian Gazette, issued semi-weekly by the Hawaiian Gazette Co., Ltd., on Tuesdays and Fridays. R. O. Matheson, Editor.  
 Sunday Advertiser, issued every Sunday morning by the Hawaiian Gazette Co., Ltd. R. O. Matheson, Editor.  
 The Daily Pacific Commercial Advertiser, issued by the Hawaiian Gazette Co. every morning (except Sunday). R. O. Matheson, Editor.

The Honolulu Star-Bulletin, issued every evening (except Sundays), by the Honolulu Star-Bulletin, Ltd. Riley H. Allen, Editor. Semi-weekly issued on Mondays and Thursdays.

The Guide, issued every Tuesday and Friday morning by the Guide Pub. Co.

The Friend, Organ of the Hawaiian Board, issued on the first of each month. F. S. Scudder, Managing Editor.

The Hawaiian Church Chronicle, issued on the first Saturday of every month. Rt. Rev. H. B. Restarick, Editor.

The Paradise of the Pacific, issued monthly. Mrs. E. A. Langton-Boyle, Publisher.

The Mid-Pacific Monthly, an illustrated descriptive magazine. Alex. Hume Ford, Editor and Publisher.

The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. Daniel Logan, Editor.

The Kuokoa (native), weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. Solomon Hanohano, Editor.

Aloha Aina (native), issued every Saturday. J. T. Ryan, Editor.

Ka Holomua (native), issued each Saturday.

Ka Puuhonua (native), issued each Friday, Akaiko Akana, Editor.

O Luso (Portuguese), issued weekly on Saturdays. M. G. Santos, Editor.

Chee Yow Shin Bo (The Liberty News), tri-weekly, Chinese.

Sun Chung Kwock Bo, tri-weekly. Chinese.

Hawaii Shinpo, issued daily in Japanese. S. Sheba, Proprietor.

The Daily Nippu Jiji, issued by the Nippu Jiji Co., Ltd.

Hilo Tribune, issued weekly on Saturdays by The Tribune Pub. Co., Hilo. A. L. MacKaye, Editor.

The Hawaii Herald, issued weekly at Hilo on Thursdays by the Herald Pub. Co. V. L. Stevenson, Editor.

The Kohala Midget, issued each Thursday, at Kohala. Dr. J. F. Cowan, Editor.

The Maui News, issued weekly at Wailuku, Maui. Will L. Cooper, Editor and Manager.

The Garden Island, issued weekly at Lihue, Kauai. L. D. Timmons, Editor.

Hoku o Hawaii, issued on Friday of each week, at Hilo. Rev. S. L. Desha, Editor.

THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

## HONOLULU LODGES, ETC.

Lodge le Progres de l'Oceanie No. 371, F. & A. M.; meets on the last Monday in each month in Masonic hall.

Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.

Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.

Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.

Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.

Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.

Nuuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.

Alexander Liholiho Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.

Honolulu Lodge, No. 409, F. & A. M.; meets at Masonic Hall every second Monday of the month.

Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.

Lei Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple.

Harmony Chapter, No. 4, Order of the Eastern Star, meets on third Saturday of each month in Masonic Temple, at 7:30 p. m.

Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.

Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.

Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.

Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.

Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.

Canton Oahu, No. 1, P. M., I. O. O. F.; meets second Friday each month in Odd Fellows' Hall, Fort St.

Mystic Lodge, No. 2, K. of P.; meets every Friday evening at Pythian Hall, cor. Beretania and Fort streets.

Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Pythian Hall.

Honolulu Temple, No. 1, Rathbone Sisters; meets in Pythian Hall, first and third Tuesday evenings of each month.

Wm. McKinley Lodge, No. 8, K. of P.; meets first and third Tuesday evenings in Pythian Hall.

Hawaiian Tribe, No. 1, I. O. Red Men; meets on first and third Thursdays of each month at Odd Fellows' Hall.

Court Lunalilo No. 6600, A. O. of Foresters; meets at K. of P. Hall on first and third Wednesdays of each month.

Court Camoës No. 8110, A. O. F.; meets second and fourth Tuesday evenings of month in San Antonio Hall.

Geo. W. De Long Post, No. 45, G. A. R.; meets the first Monday of each month in U. S. W. V. Hall.

Theo. Roosevelt Camp, No. 1, Dept. of Hawaii, U. S. W. V.; first and third Saturdays, in their hall.

Geo. C. Wiltsie Camp, Sons of Veterans; meets on third Tuesday of each month in San Antonio Hall.

Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at Pythian Hall every Thursday evening.

Court Hawaii, No. 3769, Independent Order of Foresters, meets third Monday of each month.

Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at Catholic Mission Hall.

Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, King street near Fort.

Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets second and fourth Wednesdays each month in K. of P. Hall.

Honolulu Lodge No. 1, Modern Order of Phoenix; meets every Thursday evening at their home, cor. Fort and Beretania.

Honolulu Lodge, L. O. O. M., No. 800, meets second and fourth Thursdays of the month in Pythian Hall.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first Sunday of each month at 7 p. m. in Odd Fellows' Hall.

Marine Engineers' Beneficial Association No. 100; meets every second and fourth Monday nights at K. of P. Hall.

Kamehameha Lodge (native); meets last Thursday of each month in Odd Fellows' Hall.

Kauikeaouli Lodge, No. 1 (native); meets on first and third Fridays each month in San Antonio Hall.

## PLACES OF WORSHIP.

**Central Union Church, Congregational,** cor. Beretania and Richards streets; Rev. J. H. Williams, D. D., acting minister. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesdays at 7:30.

**Kalihi Union Church, King street, Kalihi;** Rev. C. H. McVey; Sunday school at 9:45 a. m. Gospel services at 11 a. m. and 8 p. m.

**Methodist Episcopal Church, corner Beretania and Victoria streets;** Rev. L. L. Loofbourou, pastor. Sunday services 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

**The Christian Church, Kewalo street.** David Carey Peters, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 9:45 a. m. Prayer meeting Wednesday evenings, at 7:30.

**Salvation Army, services held nightly at hall, 818 Nuuanu St. near Merchant, with Sunday services at the usual hour.**

**Roman Catholic Church, Fort street, near Beretania;** Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

**St. Andrew's Cathedral, Protestant Episcopal;** entrance from Emma street, near Beretania. Rt. Rev. Henry Bond Restarick, Bishop of the Missionary District of Honolulu; Rev. Wm. Ault, Vicar. Holy Communion, 7; Sunday school, 10; morning prayer, litany and sermon, 11; Hawaiian service, 3:30; evening prayer and sermon, 7:30.

**Chinese Congregation.** Rev. Kong Yin Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.

**St. Clement's Chapel, Punahoa.** Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Usborne, rector; Rev. C. H. Tracy, vicar.

**Epiphany Mission, Kaimuki,** Rev. F. B. Eteson, priest in charge. Sunday services at 7:30 and 11 a. m. Sunday school at 10.

**First Church of Christ, Scientist, Fraternity Hall, Odd Fellows' building.** Sunday services 11 a. m. Sunday school at 9:45.

**Christian Chinese Church, Fort street;** Rev. Tse Kei Yuen, acting pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.

**German Lutheran Church, Beretania St.;** Dr. A. Hoermann, pastor. Services on Sunday at 11 a. m.; Sunday school at 10 a. m.

**Portuguese (Protestant) Mission;** Rev. A. V. Soares, pastor. Services every Sabbath at the usual hour. Sunday school at 3 p. m. Chapel situated corner of Punchbowl and Miller streets.

**Reorganized Church of Jesus Christ.** Chapel on King street, near Thomas Square; Sunday school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.

**Seventh Day Adventists;** Rev. F. H. Conway, pastor. Chapel, 767 Kinau street. Sabbath school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.

**Japanese Union Church (connected with Hawaiian Board Missions);** Rev. T. Hori, pastor. Hold services at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.

**Korean Methodist Church,** Rev. H. J. Song, pastor; Punchbowl St. near Beretania. Services at usual hours.

**Japanese Methodist Church.** Rev. C. Nakamura, pastor. Hold services in chapel on River street, near St. Louis College.

**Japanese Church,** cor. Kinau and Pensacola Sts., Rev. T. Okumura, pastor; hold regular services at the usual hours.

**Bishop Memorial Chapel, Kamehameha Schools,** Rev. J. L. Hopwood, Chaplain. Morning services at 11.

## NATIVE CHURCHES.

**Kawaiahao Church, cor. King and Punchbowl streets;** Rev. H. H. Parker, pastor. Services in Hawaiian every Sunday at 11 a. m. and 7:30 p. m. Sunday school at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

**Kaumakapili Church, King street, Palama.** Rev. H. K. Poepoe, pastor; Rev. S. K. Kamaiopili, assistant. Sunday services at the usual hours.

Several Clubs and Societies have been further discontinued from the ANNUAL'S Register and Directory owing to the non-report of their officials, and difficulty of securing same. In this gratuitous work for convenience of public reference and historic interest in after years, interested parties might at least show appreciation by reporting their boards of officers by the 15th of November each year. Unless a more co-operative spirit in this regard is shown this feature of the ANNUAL will be much reduced in the future.

## COUNTY OFFICIALS.

## CITY AND COUNTY OF HONOLULU.

Mayor.....John C. Lane  
 Sheriff.....Chas. S. Rose  
 Clerk .....D. Kalauokalani  
 Auditor .....Jas. Bicknell  
 Treasurer.....D. L. Conkling  
 City and County Attorney.....A. M. Brown  
 Supervisors—Wm. Ahia, Chas. N. Arnold, Ben Hollinger, Robt. Horner, Wm. Larsen, Daniel Logan, F. M. Hatch.  
 County Engineer.....Geo. M. Collins  
 Chief Engineer Fire Dept.—Chas. H. Thurston.  
 Asst. Engineer Fire Dept. — Wm. Blaisdell.  
 Supt. Electric Light Dept. and Police and Fire Alarm System—W. L. Frazee.  
 1st Deputy County Attorney—A. M. Cristy.  
 2nd Deputy County Attorney—Wm. T. Carden.  
 Prosecuting Attorney, Police Court —C. F. Chillingworth.  
 Bandmaster Hawaiian Band—C. Kaulani Peters.  
 Supt. Public Parks—A. K. Vierra.  
 Supt. Kapiolani Park—John H. Wise.

## COUNTY OF MAUI.

Sheriff .....Clement Crowell  
 Attorney .....E. R. Bevans  
 Auditor .....Charles Wilcox  
 Treasurer.....L. M. Baldwin  
 Clerk .....W. F. Kaae  
 Supervisors—S. E. Kalama, chairman; D. T. Fleming, R. A. Drummond, Dr. J. H. Raymond, J. N. Uahinui.

## COUNTY OF HAWAII.

Sheriff .....Samuel K. Pua  
 Auditor .....S. M. Spencer  
 Clerk .....Archibald Hapai  
 Attorney .....W. H. Beers  
 Treasurer .....Chas. Swain  
 Physician .....C. L. Stow  
 Supervisors—S. Kauhane, chairman; J. R. Yates, A. M. Cabrinha, E. H. Lyman, W. A. Todd, Jas. Ako, R. K. Naipo.

## COUNTY OF KAUAI.

Sheriff .....W. H. Rice, Jr.  
 Auditor .....Carl Maser  
 Clerk .....J. M. Kaneakua  
 Attorney .....S. K. Kaeo  
 Treasurer .....A. G. Kaulukou  
 Supervisors—Waimea, Th. Brandt; Koloa, W. D. McBryde; Lihue, H. D. Wishard; Kawaihau, Jos. Rodriguez; Hanalei, A. Menefoglio.

## FEDERAL OFFICIALS.

DEPARTMENT OF JUSTICE.  
U. S. DISTRICT COURT.

Hon. H. W. Vaughn } Judges U. S.  
 Hon. C. F. Clemons... } Dist. Court  
 S. C. Huber.....U. S. Attorney  
 S. B. Kemp.....Asst. U. S. Attorney  
 J. J. Smiddy.....U. S. Marshal  
 A. E. Harris, Office Dep. U. S. Marshal  
 O. F. Heine.....  
 ....Asst. Office Dep. U. S. Marshal  
 G. R. Clark.....Clerk  
 Wm. L. Rosa.....Deputy Clerk  
 Geo. S. Curry, F. J. H. Schnack.....  
 ....U. S. Commissioners  
 H. L. Grace.....Referee in Bankruptcy  
 L. Severance.....U. S. Commsnr, Hilo  
 S. S. Rolph.....Referee, Hilo  
 C. D. Lufkin.....Referee, Kahului  
 S. E. Hannestad.....Referee, Lihue  
 Regular Terms:—At Honolulu on the second Monday in April and October.  
 Special Terms:—May be held at such times and places in the district as the Judge may deem expedient.  
 Mrs. S. A. Strader, Lillian Nohowec Clerks, U. S. Attorney  
 H. F. Neitert.....U. S. Court Reporter  
 Mrs. Sara Holland—Secretary to U. S. District Judges.  
 U. S. Jury Commissioners—G. R. Clark, Jno. Effinger.

TREASURY DEPARTMENT.  
CUSTOMS DIVISION.

Malcolm A. Franklin.....Collector  
 Raymer Sharp—Special Deputy Collector and Chief Examiner.  
 A. B. Ingalls.....Examiner and Gauger  
 John W. Short..Chief Liquidating Clerk  
 J. K. Brown.....Dep. Col. and Cashier  
 F. L. Beringer, R. H. Bemrose, E. H. Boyen, C. J. Cooper, R. Friedersdorff ..... Examiners  
 J. B. Gibson, P. M. Naluai, M. J. Scanlan, W. H. D. King, W. D. Wilder...Deputy Collectors and Clks.  
 E. E. Miller, M. G. Johnston, Geo. W. Lucas, Joseph Ordenstein, R. K. Brown, E. S. McGrew, R. C. Stackable ..... Clerks  
 E. D. Ferreira. Stenog. and Typewriter  
 James I. Arcia.....Weigher  
 R. J. Taylor..Dep. Collector and Insptr.  
 C. O. Hills.....Sampler and Verifier  
 E. A. K. Williams.....Assistant Gauger  
 John A. Ahana.....Foreman  
 T. D. Cockett.....Messenger  
 D. C. Lindsay..Dep. Collector, Kahului  
 B. K. Baird.....Dep. Collector, Hilo  
 E. Madden....Dep. Collector, Mahukona  
 G. B. Leavitt.....Dep. Collector, Koloa

## INTERNAL REVENUE OFFICE.

John F. Haley...Collector Internal Rev.  
Ralph S. Johnstone...Chief Dep. Collector  
W. G. Ashley, Jr.....Division Deputy  
G. R. Miller.....  
Stamp and Div. Deputy Collector  
P. P. Wood.....Dep. Collector  
Lee Sing.....Stamp Dep. and Cashier  
S. G. Noda.....Messenger  
E. K. Kekuewa.....Gauger  
O. S. Costa, Hilo.....Storekeeper-Gauger

U. S. DEPARTMENT OF LABOR.  
IMMIGRATION SERVICE.

R. L. Halsey.....Inspector in Charge  
H. B. Brown...Act. Inspector in Charge  
Edwin Farmer, J. L. Milligan...Inspectrs.  
Tomizo Katsunuma, C. Tajima.....  
Japanese Interpreters  
Chuck Hoy.....Chinese Interpreter  
Mrs. Y. Watanabe.....Matron  
D. A. Meek, Hazel G. Cunningham.....Clerks

DEPARTMENT OF AGRICULTURE.  
U. S. WEATHER BUREAU.

A. M. Hamrick.....Meteorologist  
Wm. W. Wyatt, Carl A. Reichelt..  
Asst. Observers

U. S. Magnetic Station  
Frank Neumann.....Observer

## HAWAII EXPERIMENT STATION.

J. M. Westgate...Agronomist in Charge  
J. E. Higgins.....Horticulturist  
M. O. Johnson.....Chemist  
C. W. Carpenter.....Plant Pathologist  
F. G. Krauss....Supt. Extension Work  
J. B. Thompson.....Asst. Agronomist  
In Charge Glenwood Substation.  
Miss A. R. Thompson...Asst. Chemist  
C. A. Sahr.....Asst. Agronomist  
A. T. Longley.....  
Supt. Territorial Marketing Div.  
J. W. Love.....Executive Assistant

WAR DEPARTMENT.  
U. S. ARMY.

Engineer Department.  
Lt. Col. R. R. Raymond, Corps of Engineers, U. S. Army, in charge of works for defense of Honolulu and Pearl Harbor, and of the Improvement of Honolulu, Hilo and Kahului Harbor.  
Capt. Chas. J. Taylor, Corps of Engrs., Asst. to Dist. Engr. Officer.  
S. F. Burbank, Richard Quinn, Assistant Engineers.  
N. H. Duval, Junior Engineer.  
A. K. Shepard, Chief Clerk.  
F. M. Bechtel, L. H. Gamp, Geo. K. Mills, Clerks.  
A. V. Hayes, Receiver of Materials.  
Harry Kauhane, Messenger.  
Geo. M. Fraser, Storekeeper.  
S. H. Ware, Superintendent.

## NAVY DEPARTMENT.

U. S. Naval Station Pearl Harbor, T. H.  
Capt. Geo. R. Clark, Commandant.  
Lieut. Com. A. Crenshaw, Capt. of Yard.  
Lieut. (J.G.) B. F. Tilley, Aid to Cmdt.  
Lieut. (J.G.) C. C. Windsor, Radio Officer.

Surgeon Wm. Seaman.  
Paymaster W. T. Gray.  
Acct. Officer Geo. Dyer.  
Public Works Officer C. W. Parks.  
Civ. Eng. N. M. Smith.  
Asst. Civ. Eng. H. G. Taylor.  
Boatswain J. H. MacDonald, Honolulu.  
U.S.S. Alert.

Lieut. Com. T. C. Hart, comdg. 3d Submarine Division.

Lieut. J. P. Olding; Paymaster R. E. Corcoran; Lieut. J. E. Lewis; Lieuts. (J.G.) J. C. Thom, N. L. Kirk, C. C. McCord, H. D. Bode; Asst. Surg. W. W. Cress; Lieuts. (J.G.) C. B. Byrne, E. J. O'Keefe; Ensigns T. N. Vinton, K. E. Hintze.

U.S.S. St. Louis.

Lt. Com. V. S. Houston, Commanding.  
Lieuts. S. H. Lawton, R. L. Stover;  
Surg. W. S. Hoen; Lieut. (J.G.) R. A. Hall.

U.S.S. Navajo.

Chief Boatswain E. R. Piercy, comdg.  
Retired Officers, U. S. N.  
Commodore D. H. Mahan.  
Pay Clerk W. Cann.

LIGHT-HOUSE ESTABLISHMENT.  
Arthur E. Arledge, Inspector of the 19th Lighthouse District, in charge of all light-house affairs in the Hawaiian Islands.

Frank C. Palmer.....Superintendent  
Fredk. A. Edgecomb.....Asst. Supt.  
J. A. Malone.....Chief Clerk  
C. H. Norton, Thos. Wood.....Clerks  
C. E. Sherman.....Foreman  
C. F. Finkboner.....  
.....Keeper, Light House Depot  
Light-House Tender Columbine.  
F. T. Warriner, Captain.  
H. T. Martin, First Officer.  
Axel F. Hammer, Second Officer.  
Wm. I. Worrell, Chief Engineer.  
Wm. J. Costello, First Asst. Engineer.

## PUBLIC HEALTH, UNITED STATES SERVICE.

F. E. Trotter, Surgeon, U. S. P. H. S., Chief Quarantine Officer.  
L. E. Hooper, Asst. Surgeon, U. S. P. H. S.  
A. N. Sinclair, Acting Assistant Surgeon U. S. P. H. S.  
W. F. James, Asst. Surg., U. S. P. H. S.  
G. I. Van Ness, Pharmacist U.S.P.H.S.  
Emma F. Smith, Med. Insp., U.S.P.H.S.  
L. L. Sexton, Act. Asst. Surgeon, U. S. P. H. S. Hilo, Hawaii, T. H.  
Wm. Osmers, Act. Asst. Surgeon, U. S. P. H. S., Kahului, Maui, T. H.  
Franklin Burt, Act. Asst. Surg., U. S. P. H. S., Lahaina, Maui, T. H.  
A. H. Waterhouse, Act. Asst. Surgeon, U.S.P.H.S., Koloa, Kauai, T. H.  
B. D. Bond, Act. Asst. Surgeon, U. S. P. H. S., Mahukona, Hawaii, T. H.

LEPROSY INVESTIGATION STATION,  
MOLOKAI.

Dr. D. H. Curry, Surgeon.....Director  
H. T. Hollmann.....Asst. Surgeon

## WAR DEPARTMENT, U. S. ARMY.

## HAWAIIAN DEPARTMENT.

Headquarters — Honolulu, Alexander Young Building.  
 Commander—Brigadier General Frederick S. Strong, U. S. Army.  
 Aide-de-Camp—1st Lt. Wallace C. Philoon, Inf.  
 Aide-de-Camp—1st Lt. Louis A. Beard, Field Art.

## DEPARTMENT STAFF.

Chief of Staff: Lt. Col. Francis E. Lacey, Jr.  
 Adjutant: Col. James H. McRae, Adjt. Gen.  
 Inspector: Maj. Herbert O. Williams, Insp. Gen.  
 Judge Advocate: Capt. James A. Gallogly, Acting Judge Adv.  
 Quartermaster: Lieut. Col. James B. Houston, Q. M. Corps.  
 Surgeon: Col. Rudolph G. Ebert, Med. Corps.  
 Engineer: Lieut. Col. Robert R. Raymond, Corps of Eng.  
 Ordnance Officer: Maj. Charles G. Mettler, Ord. Dept.  
 Sanitary Inspector: Col. William P. Kendall, Med. Corps.  
 Officer in Charge of Militia Affairs: Maj. Charles S. Lincoln, Inf.

## Additional Staff.

Maj. Charles A. Ragan, Med. Corps, Attending Surgeon.  
 Maj. Joseph B. Douglas, C. A. C., Actg. Dept. Sig. Off.  
 Maj. Robert P. Howell, Jr., Corps of Eng., Asst. to Dept. Engr.  
 Maj. Edward Carpenter, C. A. C., Intelligence Officer, Asst. to Dept. Adjt.  
 Capt. David L. Stone, Q. M. Corps, Asst. to Dept. Adjt.  
 Capt. Thos. R. Harker, Q. M. Corps, Asst. to Dept. Q. M.  
 Capt. Jack Hayes, Q. M. Corps, Asst. to Dept. Q. M.  
 Capt. Daniel H. Ginty, Q. M. Corps, Asst. to Dept. Q. M.  
 Capt. Charles L. Willard, Q. M. Corps, Asst. to Dept. Q. M.  
 Capt. Charles J. Taylor, Corps of Eng., Asst. to Dept. Engr.  
 1st Lieut. George L. Converse, Jr., 4th Cav., Asst. to Dept. Ord. Off.  
 1st Lieut. Arnett P. Matthews, Dental Corps, Dental Surgeon.  
 1st Lieut. Charles B. Lyman, Inf., Asst. to Intell. Officer.  
 1st Lieut. Stephen H. MacGregor, Ord. Dept. Asst. to Dept. Ord. Off.  
 2d Lieut. Will T. Taber, Q. M. Corps, Asst. to Dept. Q. M.  
 2d Lieut. Alfred J. Maxwell, Q. M. Corps, Asst. to Dept. Q. M.  
 2d Lieut. Frank E. Parker, Q. M. Corps, Asst. to Dept. Q. M.

## FIRST HAWAIIAN BRIGADE.

Headquarters—Schofield Barracks.  
 Commander—Brigadier General Chas. G. Treat, U. S. Army.  
 Aide-de-Camp—1st Lt. Archibald V. Arnold, 5th Inf.  
 Brigade Adjt.: Maj. Lewis S. Sorley, 1st Inf.

Troops—1st, 25th and 32d Regiments of Infantry.

## DEPARTMENT HOSPITAL.

Col. Frank R. Keefer, Medical Corps, Commanding.

## COAST DEFENSES OF OAHU.

Headquarters—Fort Kamehameha, H. T. Posts—Forts Armstrong, De Russy, Kamehameha and Ruger.  
 Commander—Col. Alfred M. Hunter, C. A. C.

## FORT ARMSTRONG, H. T.

Capt. Geo. T. Perkins, C. A. C., Fort Commander.  
 1st Co., Coast Art. Corps.

## FORT DE RUSSY, H. T.

Maj. Jos. B. Douglas, C. A. C., Fort Commander.  
 1st Co., Coast Art. Corps.  
 2d Co., Coast Art. Corps.

## FORT KAMEHAMEHA, H. T.

Lieut. Col. Andrew Hero, Jr., C. A. C., Fort Commander.  
 13th Band, Coast Art. Corps.

1st, 2d, 3d, 4th and 5th Co., C. A. C.

## FORT RUGER, H. T.

Col. Wilmot E. Ellis, C. A. C., Fort Commander.  
 1st Lt. Hugh J. Knerr, C. A. Corps.  
 1st, 2d and 3d Co., Coast Art. Corps.

## FORT SHAFTER, H. T.

Col. Daniel Howell, 2d Inf., Commanding.

Adjt. Capt. Edwin S. Hartshorn, 2d Inf. Q. M.: Capt. Alden C. Knowles, 2d Inf. Surg., Maj. Eugene H. Hartnett, Med. Corps.

Engr. and Ord. Officer: 1st Lt. Thos. J. Camp, Inf.

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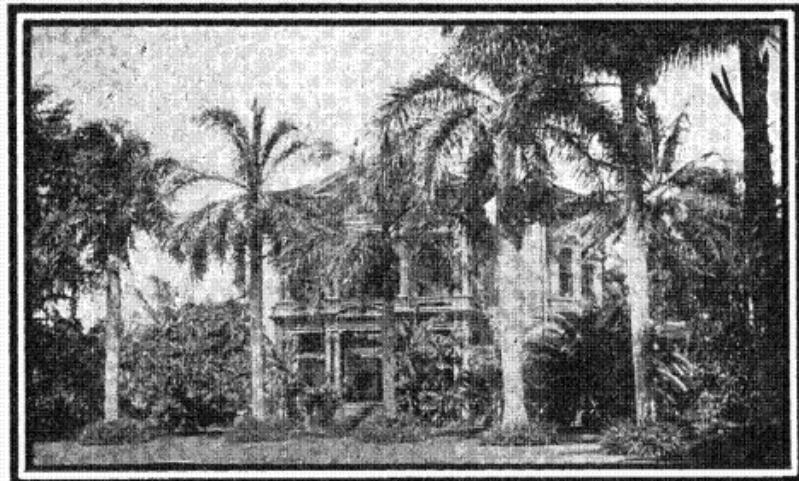


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